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OF THE NEW YORK ACADEMY OF MEDICINE

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by

LOTHAR B. KALINOWSKY

HOWARD A. RUSK

ABRAHAM M. RABINER

GREGORY ZILBOORG

HOSPITALIZATION OF VETERANS

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BULLETIN OF
THE NEW YORK ACADEMY
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SEPTEMBER 1949

PRESENT STATUS OF ELECTRIC SHOCK THERAPY*

LOTHAR B. KALINOWSKY

Research Associate in Psychiatry, College of Physicians and Surgeons, Columbia University

AFTER ten years of personal experience with electric convulsive therapy (ECT)[1] a survey of the present status of this treatment is a welcome opportunity to take stock of established facts, questions still under dispute and the limits of our present knowledge. In psychiatry such critical reviews are more important than in other fields of medicine, because the split among psychiatric schools on questions of theory makes the acceptance of clinical facts more difficult. This is all the more true for the somatic treatments in psychiatry, because they strongly contradict the theoretical concepts of many psychiatrists.

Theoretical objections against electric shock treatment are so frequently and so violently voiced that it seems justified to make some general remarks before a detailed discussion of various aspects of the treatment is given. It is true that no adequate theory for ECT is available, but this is no valid reason against its application. The patient who needs help, cannot wait until empirical knowledge has found a satisfactory theoretical basis. In most psychiatric conditions we do not know the etiology, and, therefore, cannot expect to understand the

* From the New York State Psychiatric Institute and Hospital, New York. Given before the Stated Meeting of The New York Academy of Medicine, March 3, 1949.

mechanism of a treatment which was found on empirical grounds.

Equally immaterial is the objection that ECT is only a symptomatic treatment. When we remove an involutional melancholia or an acute schizophrenic psychosis, we achieve more than a symptomatic improvement. But even in those cases where ECT only leads to a temporary improvement, its use can be valuable, and no one will object to insulin in diabetes on the grounds that its effect lasts only for hours.

Psychiatry is in great danger of becoming dogmatic when it postulates that only one type of treatment should be used to the exclusion of all the others. Those of us who for many years knew psychotherapy as the only available tool in psychiatry, are glad that, as in other fields of medicine, different procedures become available, and that we learn to discriminate in applying our various therapeutic techniques.

The original technique with alternating 60 cycle current, as introduced by Cerletti and Bini,[2] is still the standard procedure. Their bitemporal application of a forceps system of electrodes is unjustly abandoned by many manufacturers of machines. The forceps electrodes are far more practical in the treatment of uncoöperative patients than electrodes fastened with rubber bands. Of the many machines recommended by competing manufacturers the least complicated ones should be preferred, because they are less apt to present mechanical troubles. A successful solution requires only the continued efforts to find a type of current which abolishes some of the unpleasant side-effects of ECT. These attempts can be summarized as follows: The first claim of reducing post-treatment memory impairment was made by Friedman and Wilcox[3] who introduced a unidirectional current in which only one phase of the usual biphasic current is used. Lessening of memory impairment and of electroencephalographic changes were claimed but this effect was more definite in the subsequent development by Liberson[4] of a brief stimuli technique. Recently, Wilcox, too, replaced his unidirectional long stimuli with brief stimuli of about 500 per second, while Liberson reduced the number of stimuli to 120 per second with a duration of .5 to 1.0 milliseconds for the individual stimulus. These newer techniques produce convulsions with a lower amount of current applied for a longer period of time. It should be pointed out that this can be done equally well with the usual 60 cycle current, but was avoided because lower milliamperage is usually felt by the patient. It is admitted that for this same reason many patients treated with the

more recent modifications of ECT become apprehensive of the treatment. Since we, thus, lose the greatest advantage of ECT, the newer techniques are not generally accepted and have been given up by a number of experienced workers who have tried them. Whether the advantage of lesser memory impairment which was actually never confirmed in comparative studies, is really due to the different type of current or to such other variables like vertex-temporal application of the electrodes, is the subject of an investigation now under way at the Psychiatric Institute. Among many other techniques, Delmas-Marsalet's method with pulsating direct current,[5] Strauss and MacPhail's steep wave electroplexy,[6] and Larragoiti's brief stimuli technique[7] with three electrode—vertex and bitemporal—application may be mentioned. They all have the same therapeutic results, because not the electric current but the convulsions are therapeutically effective. Memory impairment is certainly not explained by a higher current intensity. We are now using two or three stimuli routinely in each treatment for reasons given later, and yet, the patients show no more confusion than before we used this technique. Reports on these techniques often mentioned "slight" seizures whose descriptions resemble incomplete seizures. In our experience such incomplete seizures followed by quick awakening are therapeutically ineffective. This is also true for the rarely encountered Jacksonian seizures and for subconvulsive (petit mal) responses.

While those recommending the technical modifications mentioned so far, did not claim better therapeutic results, this was done by some workers for the so-called Electronarcosis Treatment[8] which applies electric stimulation for 7 or more minutes. After a personal experience of two years with this method, I am unable to see any advantage over ECT; to the contrary, since it is cumbersome, frequently felt by the patient, and certainly more dangerous, as shown by Garmany and Early.[9] I decided to give it up. The term "Electronarcosis" is unjustified, because the patient has a generalized seizure. After a typical tonic phase, the clonic movements are suppressed by the continued flow of current; when after 30 seconds the current is reduced, the last clonic movements of the convulsion still become visible. When the current is stepped up again, the patient remains in a rigid state which does not seem to have any therapeutic value and during which some patients become restless and begin to feel the current. Bowman

and Simon[10] have shown that patients with depressions need the same number of applications as were necessary in previous episodes treated with ordinary ECT, and that there is no evidence of a superiority in any type of schizophrenia. It is true that some favorable reports have appeared,[11,12] but no convincing statistical proof of its claimed superiority over ECT or even over insulin was given.

ECT has the great advantage of being a surprisingly harmless procedure and any recommendations complicating its simplicity should be carefully tested as to their safety. Convulsions seem to be a preformed mechanism which can be safely elicited in every individual. This explains why fatalities in uncomplicated ECT are practically unknown, and why preëxisting diseases are hardly aggravated by the treatment. Hypertension and myocardial damage, so frequent in the group of involutional agitated depressions, are not likely to increase during a convulsive treatment. This should be known to all psychiatrists, and it is unfair to shift the responsibility for the treatment of such patients to a medical consultant who is unacquainted with the fact that in such cases the cardiovascular condition improves as soon as the strain of the emotional disturbance is removed. Tuberculosis is also no contraindication for ECT. In view of the frequent simultaneous occurrence of tuberculosis and schizophrenia, it is regrettable that some hospitals still preclude such patients from treatment of their psychotic condition. The constant gain of weight after successful ECT was often seen to improve the condition of tuberculous patients. Pregnant women were treated in the last month of their pregnancy without any harm to mother or child. The fact that in epileptics other diseases are not aggravated by the convulsions, explains why most of the originally postulated contraindications for ECT were unjustified. It may be mentioned that children[13] as well as patients beyond seventy and eighty years of age[14] can be safely treated.

The most harassing complication of ECT continues to be the occurrence of fractures. Those of the mid-thoracic spine are of limited clinical importance and never lead to any serious consequences; continuation of treatment where necessary, does not increase the degree of compression. We do not know of any instance where X-ray findings prior to treatment could have predicted such occurrence, and it is unjustified to consider arthritis or old deformities of the spine as contraindications. A more serious problem are the fractures of the

long bones, particularly humerus and femur, and those rare but often bilateral fractures of the acetabulum. It should be stated emphatically that there is no way of predicting such fractures. In our large treatment group we never had fractures of the long bones, but in a much smaller material in another hospital, the author had several such instances with the same technique. Special position of the patient hardly prevents fractures, but they are favored by tight restraint. As a preventive measure we routinely induce a subconvulsive response in order to make the patient relaxed before the convulsive stimulus is applied. Another attempt to prevent fractures is the slow stepping-up of the current, the so-called glissando technique (Tietz), which we found unreliable.

A reliable but dangerous method to prevent fractures is the use of curare (Intocostrin Squibb).[15] Our own experience and increasing evidence in the literature show that curare is more dangerous than the complications it is supposed to prevent. Contrary to uncombined ECT, several fatalities in patients treated with curare were reported, and others in patients who died from the injection of curare even before the convulsion was induced,[16] are sufficient warning against routine application of this drug; we consider it valuable, however, in patients where preëxisting bone pathology such as Paget's disease or recent fractures would otherwise preclude a strongly indicated course of ECT.

Less dangerous but also complicating the treatment is the preliminary use of intravenous sodium amytal or pentothal in ECT. These drugs increase the patient's respiratory difficulties which are anyway the most frequent complication in ECT which we counteract by routine application of a few artificial respiratory movements. Lessening of muscular contraction and of the strain on the heart as a motivation for the use of these drugs are not borne out by our experience. Only severe postconvulsive excitement states are a sufficient reason to inject 7½ grains of sodium amytal intravenously. A less dangerous, though not quite reliable means of preventing postconvulsive excitements is the use of 4 or 5 cc. coramin given intravenously prior to ECT. This combination was first recommended by Fabing[17] as a means to increase the effect of ECT in excitement states. This might have the same explanation as the seemingly better response of such conditions to metrazol treatment with its combined chemical and convulsive effect on the brain.

Fear of the treatment is no sufficient reason to use sodium amytal

routinely. In ordinary ECT, contrary to metrazol therapy, unpleasant sensations are absent. Yet, some fear is often expressed and connected with the idea of losing consciousness. More puzzling is a stronger fear reaction which takes place in some patients after several treatments. The patient usually gives no explanation for this ill-defined fear which seems to be related to his confusion. Some patients explain it with the belatedly remembered period of awakening from their previous treatments.

The organic reactions during ECT are not limited to memory impairment but, like all organic reactions, they show emotional changes. They can be distressing but they are never of long duration. Thorough psychological testing as well as psychiatric follow-ups have convincingly ruled out any permanent organic damage beyond the deteriorating effect by the psychosis as such. Likewise temporary is the electroencephalographic evidence of brain damage after ECT. This is in accordance with the absence of neuropathological evidence of irreversible brain damage. Pathological findings reported by some observers, were not confirmed in any of the numerous subsequent investigations. Organic psychotic reactions of manifold symptomatology which may occur even after very few treatments do not seem to have a neuropathological basis; they clear up without leaving any traces even if the point of deep organic dementia is reached which some clinicians produce purposely by giving 3 or 4 treatments daily in order to increase the therapeutic effect of ECT. We did not convince ourselves of the need for such accumulation of treatments but can confirm the harmlessness of this procedure regarding permanent damage.

The importance of ECT as a valuable tool in psychiatry is no longer under dispute among those who have ever applied it, even though the various shock treatments perhaps did not live up to early expectations. Many psychiatrists still reject ECT for reasons of principle without having any experience with it. Indiscriminate use of the treatment by unqualified men lends some weapon to those fighting it. Such indiscriminate use is easily promoted by the possibility of ambulatory treatment. Yet, ambulatory treatment as such is not objectionable and will have an increasingly important place in our fight against mental illness. It can be given in clinics as well as in offices. Although the larger part of the author's personal experience derived from hospital patients, no complications were ever encountered that could not be

dealt with just as well in an office. The disadvantages of ambulatory treatment are more than compensated by its social importance. Respiratory difficulties which are the only true emergencies can be dealt with in any office well equipped for this particular type of treatment. More unpleasant for the physician than for the patient are the post-convulsive excitement states for which the psychiatrist giving ECT should be prepared with adequate personnel and measures for temporary restraint until such patients regain full consciousness. A disadvantage of both, clinic and office treatment, is that the patient must be taken care of by his family during the confusional state frequently caused by ECT. More serious is the difficulty to give a sufficient number of treatments to ambulatory patients. The patient and his family are not easily convinced that often treatment has to be continued after the patient is symptom free. This, and the occasional activation of symptoms are the reason why schizophrenics who require a long course of treatments, should rather be hospitalized. Exceptions are chronic cases where not more than a symptomatic effect of a few treatments is planned, and those where treatments are given chiefly as a prognostic test to determine how promising a full hospital course of any type of therapy would still be.

In view of the many problems involved in ambulatory treatment, it should be requested that only psychiatrists with special experience in this field should be allowed to give office treatment, that one or two specially trained nurses are available, that the treatment not be given to patients unaccompanied by relatives, and that the patient be kept in the office for at least one hour after the treatment. Other requirements are that the family be fully informed of the fact that patients under ECT have to be watched constantly at home for approximately one week after the last treatment until the confusion has cleared up, and finally that the psychiatrist giving the treatment should feel responsible for a follow-up of the patient and, if the patient requires hospitalization during the treatment, discuss with the hospital the continuity of the treatment.

Clinic facilities for ECT should be provided to an increasing extent in general hospitals and, more important, in state hospitals. This would eliminate the admission of patients whose symptoms can be removed with very few treatments such as depressions, and it would prevent readmissions of patients who had a full course of treatment in the

hospital but, after discharge, have a tendency to relapse. Such treatment, successfully applied in most English mental hospitals, would change the after-care clinics of institutions into active treatment centers and decrease the admission rate.

Indications

The main indications for ECT have been listed frequently. Yet, there is so much confusion and disagreement that they will be discussed here once more in an attempt to clarify some of the disputed points.

The value of ECT in the affective disorders is generally accepted. Its almost specific effect in clearing up depressions after 4 or less treatments is the most convincing proof that this somatic method in psychiatry is a therapeutic approach in the right direction. There are few better predictable therapeutic effects in medicine. Manic-depressive, involutional and old-age depressions react equally well. It is amazing to see most depressions of various depths and duration clear up with the same number of three to five treatments. One or two additional treatments are advisable, but there is little evidence that in depressions a longer course of treatment promises a more lasting effect. It is true that manic-depressive episodes recur whether treated or untreated, but the great value of ECT in these conditions cannot be questioned when we realize how much human suffering is prevented by shortening the episode. The safe prevention of suicides should be reëmphasized, because we all know of instances where misrepresentation of the treatment in newspapers and motion pictures discourages patients and relatives from accepting the only treatment which prevents suicides in depressions. It is frequently overlooked that moderate depressions are a much greater suicidal risk than advanced cases with no initiative left. Delaying treatment in such cases is negligence. ECT as the treatment of choice in depressions belongs to those facts about psychiatry which the general practitioner should know because it is he who sees these patients when they begin to be sleepless, to lose weight and to complain of vague physical symptoms. In these patients general medical measures are of no avail including the endocrine substances which are still widely used in involutional depressions.

Contrary to depressions, manic episodes were often reported to be unresponsive to ECT. This is not so when one to three treatments are given on several subsequent days. Failures are often due to the wrong

diagnosis of certain schizophrenic syndromes as manic episodes. That depressed patients after ECT turn hypomanic is not infrequent, and often represents a short organic reaction which does not require further treatment. When a true manic episode follows a depression, renewed treatment is indicated. Manic-depressives who constantly change from elation to depression are poor candidates for ECT except for a symptomatic removal of the more acute psychotic manifestations. Preventive use of ECT once a month in manic-depressives was successfully tried by Geoghegan and Stevenson.[18] Unfortunately, few patients are coöperative enough for such treatment.

In involutional melancholia 5 to 8 treatments are usually sufficient. Failures belong almost exclusively in the group of involutional psychoses of the paranoid type. They respond less well and need a much longer course of treatment. Their treatment prognosis often depends on the depressive component in their symptomatology.

Schizophrenia is the disease for which convulsive therapy as well as insulin coma treatment were originally introduced, and for several years, exclusively used. The spectacular results of ECT in the affective disorders discouraged psychiatrists regarding its application in schizophrenia. It is true that here the quick response to 4 or 5 electric shock treatments is often followed by a relapse, but routine application of 20 or more treatments even in cases of early improvement, makes results comparable to insulin therapy. Some workers feel that in paranoid schizophrenics insulin yields better results. More and more hospitals have replaced the difficult insulin method by ECT. We do not entirely agree with this attitude. In a disease where all treatments are still highly unsatisfactory, every approach should be used. The frequent competitive recommendation of the various shock treatments has to be replaced by an effort to supplement one method with the other.

Applied adequately, ECT gives 60 to 70 per cent good remissions during the first six months of illness in patients with acute onset. The remission rate remains satisfactory up to one year of illness but drops rapidly after one year, thus emphasizing that early treatment in schizophrenics is imperative. Figures are much lower in patients with insiduous onset of the disease.

Of the subtypes of schizophrenia catatonic excitements respond best; next are acute paranoids. Catatonic stupors, wrongly considered

the best prospects for ECT, relapse frequently. The poorest results are obtained in hebephrenics. This is not surprising when we realize that the primary schizophrenic symptoms respond little to treatment, and that even patients with good results maintain some "scarring," such as reduced affectivity or some thinking disorders.

Complete failure is often encountered in "late" paranoids and similar syndromes in the middle age group, classified as paraphrenia. Also cases close to the rare group of true paranoia do not respond. Another group usually refractory to ECT is that of hypochondriasis in the older age bracket. These patients with bizarre physical complaints are usually treated a long time for physical ailments until the psychiatric origin of their complaints is recognized. They are often diagnosed as agitated depressions. They rather belong to the schizophrenic group, but respond less to ECT than most schizophrenics do.

The inadequacy of ECT in the treatment of schizophrenia explains that combinations with other treatments are frequently used. Combined ECT-insulin treatment is indispensible in schizophrenia in spite of the experience that patients who failed under intensive treatment with one shock method respond little to others. In combined convulsive-insulin therapy metrazol has not been entirely replaced by ECT. At the Psychiatric Institute we combine it with ECT without seeing any of the originally dreaded respiratory difficulties. The convulsion is given at the end of the hypoglycemic coma, and the coma is terminated immediately after the convulsion by means of a previously introduced nasal tube. Combination of ECT with fever therapy (Fuster[19]) is used in those countries where sulphur in oil and other fever producing preparations are considered valuable in the treatment of schizophrenia.

Since the introduction of lobotomy and other neurosurgical procedures it is important to establish when shock treatment in a schizophrenic should be given up. The still prevailing attitude to limit surgery to chronic cases of many years' duration, has to be revised. Our recommendation is to apply 20 to 40 shock treatments, and in case of failure, insulin in combination with convulsive therapy. This requires hardly more than six months, and surgery can be considered before one year of continuous sickness has elapsed.

The relationship between ECT and the psychosurgical procedures requires two more comments. A "prognostic electric shock test" is a useful tool in the selection of chronic schizophrenic patients for psy-

chosurgery. Such a test consisting of 3 or 4 convulsions removes temporarily the reversible part of a psychosis and will tell how far the patient's personality is still preserved under a psychotic syndrome. Thus, it may show whether an uncommunicative catatonic is completely empty or only blocked, and give important clues as to how far the patient's symptoms can still be removed by surgical procedures. Finally, postoperative ECT is sometimes useful in removing psychiatric manifestations uninfluenced by surgery.

A discussion on ECT in schizophrenia would be incomplete without stressing the importance maintenance treatment with one or two occasional ECT given whenever an incompletely improved patient begins to become worse. Such treatments keep many patients on a better level and may prevent readmissions. Applied in all chronic wards of mental hospitals such symptomatic treatment can do away with restraint, tube feeding, continuous baths and similar measures, and thereby completely change the looks of the "backwards" of our mental institutions. The effect on the morale of patients, relatives and the hospital personnel is a factor which cannot be overrated.

It is not generally recognized that ECT is of some value for the psychotic manifestations of certain organic conditions. In general paresis a few ECT remove mental symptoms prior to malaria or penicillin therapy, and, thus, facilitate the treatment of such patients in general hospitals where they would otherwise not be acceptable. Also residual symptoms after malaria or penicillin therapy respond well to ECT. Psychotic episodes in cases of Parkinson's disease or other neurological diseases respond equally well to ECT. In epilepsy psychotic manifestations such as clouded states which are often interrupted by spontaneous convulsions, respond well to artificial electrically induced seizures. Epilepsy is no contraindication for ECT, and it was shown that the convulsive threshold is temporarily raised after each preceding convulsion. Therefore, in patients with predictable convulsions as seen in menstrual epilepsy, artificial seizures can even be used to prevent spontaneous convulsions. This has little practical importance but it is another proof that the fear of epilepsy as an after-effect of ECT is unfounded.

A few rarer indications seen to have in common the blurring effect of ECT. Neurodermatitis and other itching skin conditions may heal when the urge for scratching is temporarily eliminated by a few con-

vulsions. Attacks of bronchial asthma often disappear while a patient is under ECT, but also an aggravation of asthma has been reported (Cohen and Holbrook[20]). Withdrawal symptoms in morphine addicts can be eliminated by a few ECT.

The largest group of psychiatric patients not responsive to ECT is represented by psychoneurotics. Most criticism of ECT results from its indiscriminate use in the psychoneuroses. It cannot be emphasized enough that contrary to psychotics, some neurotics may be harmed by ECT. Anxiety, as the most frequent symptom in neurotics, is often aggravated. Many neurotics react badly to the memory impairment and complain of it long after psychological tests have shown that actually no impairment persists. Conversion symptoms sometimes disappear as they may do after any impressive treatment, but more often side-effects such as headache, muscle pain, and so on, are added to the patient's complaints. The only group of neurotics where ECT is indicated, are the reactive depressions. They respond as well as other depressions, but the neurosis from which the depression developed, remains subject to psychotherapy. Only few authors felt that ECT expedites psychotherapy in those psychoneurotics who seem rutted in their illness (Hamilton[21]).

The question of psychotherapy in all cases treated with ECT takes up much space in the literature but remains unsettled. The statement that ECT should be only used as an adjunct to psychotherapy has been reiterated in many papers, but no attempt has ever been made to compare series of ECT patients treated with and without simultaneous psychotherapy. It is unquestionable that the most favorable results in ECT were reported from large institutions where no psychotherapy was applied. The comparison of two series treated by us with the same technique, showed far more favorable results in the institutional material in spite of the lack of psychotherapy. This applies only to psychotics, while in psychoneurotics, if there is any indication for ECT, it can only be an adjunct to psychotherapy. Psychotherapists frequently request ECT from us to break through a patient's resistance. This can be done by using the organic blurring which is a side-effect of ECT, but it is of questionable value and not comparable to the curative effect of ECT in many psychoses. Our experience led us more and more to the conclusion that psychotherapeutic measures and shock treatments have mostly different indications and rarely overlap.

The reluctance on the part of some psychiatrists to apply ECT even in those cases where a favorable result is clearly predictable, is based primarily on theoretical objections. It is true that the shock treatments have no foundation in psychological theories; on the other hand, those thinking in organic terms, are as much at a loss to understand their action. As treating physicians we cannot wait for satisfactory theories. As psychiatry begins to enlarge its therapeutic armentarium, we psychiatrists like other physicians will learn to select the right therapeutic techniques for the right type of patient. If this is done, ECT applied with discrimination, will be helpful in many psychiatric patients.

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THE MEDICAL, SOCIAL AND PUBLIC HEALTH ASPECTS OF REHABILITATION

*The Hermann M. Biggs Memorial Lecture**

HOWARD A. RUSK

Professor and Chairman of the Department of Rehabilitation and Physical Medicine, New York University College of Medicine

WHEN Dr. Hermann M. Biggs, whom we are meeting here to honor this evening, was born in Trumansburg, New York, on September 29, 1859, both the field of public health, for which he did so much, and the City of New York, which benefited principally from his pioneer efforts, were far from the complex structures they represent today.

An overgrown village, New York City, at that time, had just begun to push its way up the Island of Manhattan. The last house on Madison Avenue was then on Twenty-Seventh Street, and the new water reservoir on Murray Hill near Forty-Second Street had just been completed. There was no city sewage system, and the flood of poverty-stricken immigrants who squatted in crowded tenements near the docks, constituted a serious public health problem.

It was during this same period that Dr. Lemuel Shattuck of Boston, in his report of the Massachusetts Sanitary Commission, wrote the blue print for the modern concept of health organization in which public health is considered responsible for those health problems which, for their solution, require systematized social action.[1]

The principles of public health and preventive medicine in this nation, however, did not originate with Dr. Biggs or Dr. Shattuck. As early as 1647, the Massachusetts Bay Colony set up quarantine regulations when news reached the colony of a "great mortality" in the West Indies. The first board of health in the nation was established in Petersburg, Virginia in 1780, and similar organizations were established in New York, Baltimore and Boston in the 1790's.[2]

At that time, until the concept of public health was widened by men like Dr. Biggs, who believed in a more positive approach, public health

* Given April 7, 1949 at the Stated Meeting of The New York Academy of Medicine.

was restricted largely to sanitary measures, quarantine, and the elimination of "public nuisances."

It was not until the introduction of the science of immunology by Pasteur and the application of this new knowledge that public health concepts were greatly broadened.

Today, we are once more standing on the threshold of a new concept which has, paradoxically, been forced upon us by medicine and public health through their success in reducing the incidence of death from acute, communicable disease, and producing the phenomena of an aging population. When Hermann M. Biggs was born in 1859, the average life expectancy in this country was forty years. When he was appointed the first general medical officer of the Department of Health of New York in 1901, it was forty-nine. This year, on the ninetieth anniversary of his birth, it is 66.5.

What are the medical and public health implications of this increasing age level of the population? First, as people become older, their medical needs change, and they demand more medical service. In 1940, the 26.5 per cent of the nation's population over 45 required over half of the nation's medical care. By 1980, it is expected that the number of persons over 45 will constitute nearly half of the population.[3] Today, we are busily studying and discussing the needs and best plans for increasing and distributing medical services, yet the growing age level of the population indicates that by 1980 we may need nearly double the amount of medical service that is available today.

Secondly, lacking specific measures in the cure of many of the chronic diseases, medicine must look to rehabilitation to teach those afflicted by chronic disability to live and to work as effectively as possible with what they have left. Until medicine finds specific answers to the problems of the diseases of the heart and circulation, rheumatic fever and arthritis, cerebral palsy, multiple sclerosis, poliomyelitis and the other crippling diseases, we must utilize the techniques of physical rehabilitation, psychology, social service and the other allied ancillary specialties of rehabilitation to teach the disabled to live within the limits of their disabilities but to the hilt of their capabilities.

In thinking of the disabled, the average citizen is inclined to think of disabled veterans, yet the extent of physical disability among our civilian population is far greater. For example, the number of persons permanently disabled in farm accidents in 1945 was four times greater

than the number of servicemen permanently disabled in the bloody assault on Iwo Jima. Ignoring the vast number of persons who suffer disabilities resulting from disease, each year in this country nearly 50 per cent more persons are permanently disabled from accidents alone than there were American servicemen disabled as a result of combat during the entire four years of the war. Added to these are the 8,000,000 to 9,000,000 persons who suffer from disease of the heart and circulation, the 6,850,000 from rheumatism and arthritis, the 300,000 from cerebral palsy and a probable like number from the residual effects of poliomyelitis, the 1,000,000 known and additional 1,000,000 unknown cases of diabetes mellitus, the half million to one and one-half million persons with epilepsy, the 400,000 persons who have undergone major amputations, and the millions who suffer from disorders of vision, hearing and speech.[4] These are the numbers, but they cannot tell the story of pain, anxiety, suffering and all of the difficult secondary problems that disease and disability leave in their wake. Aside from the pain and tearing personal and family anguish, the economic costs of disease and disability are staggering.

Until we find the etiology and treatment for the chronic diseases producing disability, we can expect, as the population ages, that the extent of physical disability in this nation will progressively increase. Since chronic disease is usually non-reportable, it is difficult to find reliable statistics on its extent. Although a census of such conditions has been proposed on several occasions, there has never been a complete survey of the extent of disability in this country. The most comprehensive source of information at present is the National Health Survey, conducted by the United States Public Health Service in 1935-1936.[5] In this survey, 800,000 families in eighty-three cities and twenty-three rural areas of nineteen states were studied. The reliability of this study has been demonstrated in other selective samples on the extent of chronic disease and crippling conditions, and although results are not strictly comparable due to different methods of enumeration,[6,7,8,9] they bear out the fact that the National Health Survey is probably the best source available for such statistics, although later studies indicate that its results are probably conservative. It was this study that reported there were at that time some 23,000,000 persons in the United States who were handicapped to some extent by disease, accident, maladjustment or former wars. In a more recent study in New Haven conducted

by the School of Public Health of the Yale University College of Medicine it was found that 121 persons for each 1,000 in the population suffered from chronic illness, and that one-third of this number were totally disabled and one-third below twenty-five years of age.[10]

One of our great medical needs today is for the provision of total treatment of chronically ill patients in terms of the every-day problems of living which they face. Many such patients cannot be rehabilitated to the extent of employability, but a great percentage can be rehabilitated to the point of sufficient self-care so that they can live independent, dignified and happy lives at home, requiring a minimum of aid from other members of the family.

There was, at the war's end, some skepticism of the value of medical rehabilitation in the Veterans Administration hospitals for veterans of World War I, and those of the Regular Army who suffered from chronic illness and long-standing disabilities. Some physicians feared that young veterans of World War II would soon lose ambition, initiative and a desire for personal independence through association with older veterans who had developed "hospitalitis" as a result of boredom, frustration and hopelessness. In the veterans hospitals where comprehensive, dynamic rehabilitation programs are now in operation, the results have been not only revealing but encouraging.

Illustrative of the results obtained in the Physical Medicine Rehabilitation program in the Veterans Administration is a study of 130 chronic neurologic patients in one hospital, all but two of whom were World War I veterans, and many of whom had not been out of bed in ten years.[11] After nine months of rehabilitation, twenty-five had left the hospital and were employed; forty others had been discharged to their homes capable of light work, and, of those remaining, thirty were ambulatory and undergoing advanced rehabilitation, and twenty-five were capable of some self-care. All but 10 of the group had shown some worthwhile permanent improvement. With a five-year life expectancy of these patients, and a per patient day hospitalization cost of over $12, rehabilitation of this one group has saved the government, and eventually the taxpayer, over $1,125,000. It would seem logical that a similar program for the civilian chronically ill would result in comparative savings.

In another study at the Veterans Administration Hospital at Manhattan Beach, Brooklyn, through rehabilitation, seventy-four of a group

of 126 patients suffering from such diseases as arthritis, multiple sclerosis, Buerger's, Parkinson's and heart disease and various forms of paralysis, have been discharged from the hospital and are now at home taking care of themselves.[12] All but thirteen of the original 126 patients have recovered all or part of their ability for self-care. At the beginning of this study, eighty-three of these veterans were classified as "completely hopeless," but forty-nine of this group have been rehabilitated to the point of complete independence, and the remainder are capable of self-care.

The importance of dynamic therapeutics in the treatment of chronic illness in the Veterans Administration is readily apparent when we realize that the approximately twenty million veterans in this country represents a static population that is increasing in age daily. As pointed out in the Report of the Administrator of Veterans Affairs for the fiscal year 1948, there will be almost as many World War II veterans alive (3,800,000) at the turn of the century, 2000, as there were World War I veterans (3,727,000) in mid-1948.[13] The average age of the World War II veterans then, however, will be nearly 78 years, compared with an average in mid-1948 of less than fifty-five for World War I veterans, and seventy-two for Spanish-American War veterans.

Both the Veterans Administration and some civilian hospitals have demonstrated that rehabilitation to the point of self-care and even to full or limited employment is possible for many of the chronically ill who have been hospitalized over long periods. Yet, in most of our civilian hospitals, the patient receives few services of this type. Hospitals complain that the chronically ill are responsible for their overcrowding, but they do little to provide the retraining services that will permit many patients to leave the hospital.

The hospital of today is being recognized more and more as the focal point in public health activities. With the changing demands being placed upon it because of the growing incidence of chronic disease and disability, it must also play a more important role in the rehabilitation of patients. Hospitals in the past have concentrated almost solely upon the definitive aspects of medicine and surgery. If the hospital is to meet the changing health needs of the public, it must assume greater responsibility for all three phases of health—prevention, definitive treatment and rehabilitation. As Bayne-Jones has said, ". . . they must become increasingly houses of prevention instead

of houses of pity."[14] for the problems of chronic disease can be met only by the creation and utilization of abilities, rather than merely the building of facilities.

Although it would seem logical that medical rehabilitation would be an important service in every civilian hospital, there has been little or no attempt, until recently, to establish such programs in civilian hospitals. Of the 1,468,714 hospital beds in the United States in 1946, 44 per cent were in general hospitals, but these 641,331 beds cared for 92 per cent of all patients.[15] Rehabilitation, in varying degrees, has been available in some tuberculosis, mental and other specialized hospitals, but little provision has been made for a dynamic rehabilitation program for the over 14,000,000 persons who are patients in general hospitals each year.

The Hospital Council of Greater New York has recommended that bed requirements for rehabilitation and convalescent care be placed at one bed per every one thousand population.[16] This would mean that approximately 20 per cent of the beds in general hospitals would be utilized for this purpose. It was felt by the Council that the allocation of this number of beds and the introduction of a dynamic rehabilitation program would decrease hospital days, provide facilities for the evaluation and training of convalescent and chronically ill and disabled patients, and would help provide a program of total medical care.

Medical examination, x-ray and the usual hospital routines are not enough to meet the problems of the disabled persons. A diversified but integrated program must be developed for such patients on the basis of their needs in meeting day-to-day life situations. They must be provided with a program for training to teach them to utilize their residual abilities to the maximum. Patients must be tested and then trained in the activities of daily living; the simple things, such as turning over in bed, dressing and undressing, applying and removing braces, getting from the bed to the wheelchair or the standing position. These are every-day things, but they are the foundation of self-care and physical independence.

Illustrative of such cases is that of TF, a young lawyer who was admitted to the Rehabilitation and Physical Medicine Service at Bellevue Hospital in 1946. Paralyzed in all four extremities and the abdominal muscles as a result of poliomyelitis in 1940, this patient was entirely

helpless. His physical capacities were limited to the ability to grasp to some extent with his hands, and partially to move his fingers. His hand function was estimated at 15 per cent of normal.

He was 37 years old, and had spent a year in general hospitals and four years in various specialized hospitals. He came to Bellevue Hospital from a hospital for incurables. Although little could be done for this patient in the way of physical restoration, his vision, speech and mental ability were not affected, and it appeared that with the proper mechanical devices to meet some of the basic problems of daily living, he could return to the practice of law. With a cock-up splint for the wrist, and a rotary splint for the forearm, he was taught to feed himself. With a toggle switch on a French-type telephone mounted on a stand, he could signal the operator and thereby communicate by telephone. He learned to type with a remote control electric typewriter that could be operated with a minimum of strength and motion. With the combined efforts of the rehabilitation team of the doctor, the nurse, the therapists, volunteers and the most important member of the team—the patient himself—he learned within seven weeks to turn over in bed unaided. This meant that he did not need an attendant at night. He was discharged last July, and since that time has been living in mid-Manhattan practicing law.

Hospital programs alone, however, are not enough. If we are to meet the needs of the disabled and chronically ill, we must have a broad community program of dispersal after discharge from the hospital. The hospital, of course, is the focal point, the sorting station and the training ground, for just as satisfactory job placement is the capstone of any successful program of services to the handicapped, medical rehabilitation, starting at the earliest possible moment following acute illness or injury is the foundation, for all subsequent rehabilitation processes are built upon the residual physical disability which medical services cannot eliminate.

The end of rehabilitation for some patients leaving the hospital is *full employment*, for in many instances the disability can be eliminated or the patient can be rehabilitated to the point that he is not vocationally handicapped. An example of such cases is that of a miner recently sent to New York for rehabilitation under the auspices of the Welfare and Retirement Fund of the United Mine Workers of America. For five years this patient had had a total paralysis of one of the upper extrem-

ities which came on after an injury in the mines. The nerve had healed completely, but during the long healing process, the arm had become alienated. Electrical stimulation demonstrated to him that the hand was functional. After three days of therapy, the patient had a 90 per cent return of function and only needed continuing treatment to restore the atrophied muscles to their normal strength, in order to return to his old job.

The great majority of those patients who are permanently disabled are not vocationally handicapped if *selective placement* procedures are used, in which an analysis is made of the physical capacities of the individual and then are matched to the physical demands of the job. Just as there are powerful forces of physiological compensation in the case of disease or injury, it is possible, through retraining, for the remaining physical capacities of the disabled individual to be utilized vocationally. With the paraplegic patient placed in a position which requires strength in the muscles of the shoulder girdle and upper extremities, the blind person in a position which requires finger dexterity and aural acuity rather than vision, and the deaf person in a working atmosphere of noise and confusion, objective studies have shown they are far more reliable, efficient and safe employees than the able-bodied.

For those persons whose physical disabilities are so great that they cannot work in normal industry even with selective placement, we must have a series of *sheltered workshops*. Here in New York and throughout the nation, we have a number of pioneer institutions such as the Institute for the Crippled and Disabled, the Division of the Handicapped of the Brooklyn Bureau of Social Service, the Goodwill Industries, and others who have demonstrated the physical, psychological and social values of permitting any person regardless of the severity of his disability to gain dignity which comes from productivity.

For those persons whose disabilities will not permit them to travel to and from a sheltered environment, we must provide programs of *home care, housekeeping services, and industrial homework*. As demonstrated by Jensen's work at Rochester, similar programs in Syracuse, and the outstanding program developed by Bluestone and his associates at Montefiore Hospital here in New York, the provision of home medical care programs supplemented by adequate social service and visiting housekeeping service can reduce the financial and professional strain upon our hospitals and give the patient a more satisfying life

within the family environment. Added to this there should be a program of industrial home work both for the monetary and psychological benefits it can bring to patients.

One of our most neglected groups in the chronic degenerative disease category of patients has been the *senile psychotics*. They have usually been placed in the almshouse or county institution along with individuals of all ages and of normal mentality, or have been sent to state institutions for the insane where often, because of the crowded conditions, they have been placed with severely disturbed psychotics.

How a community can meet the needs of this particular group has been demonstrated in Vancouver, B. C., where a number of small, standardized, economically-built 100 bed units for their care have been placed in centers of population. The doctors in each community have assumed the medical responsibility, and mature, motherly type practical nurses have been selected for patient care. Such units, strategically placed, allow the patient to maintain contact with his former environment and have visits with his old friends and family. Through such plans, optimum results may be obtained at minimum cost.

In our failure to utilize "work therapy" with institutional patients suffering from chronic disease and physical disability, we have neglected one of the most valuable tools in the management of this group of patients. All who have gone through a custodial institution have noted the apathy and hopelessness of most residents. There are always a few however, who are bright and active. They are the patients who have volunteered or have been assigned to tasks within their physical capacities.

The use of selective placement can be used in such institutions as well as in industry. Even though their capacities may be limited, the great majority of the residents of public homes can do some tasks about the home. For some it may be only simple housekeeping assistance; others may have the ability and experience to assume greater responsibilities. Such jobs should carry regular compensation, even though it be small, for there is no greater satisfaction than that which comes through earning. In many homes, it would be possible to provide sheltered workshop facilities where residents could do either industrial home work or necessary services for the community operating the home. Like work for the homebound, such plans require both imagination and close supervision to prevent exploitation, but they would pay

tremendous dividends by providing a purpose in life for many patients.

Both the same therapeutic techniques and community dispersal agents should be utilized in the treatment of the *psychoneurotic* patient. Experience in the military services and the Veterans Administration have shown the value of well-planned programs of physical activity, work therapy, recreation, social services, vocational guidance and education, to be invaluable as adjunctives to definitive psychiatric treatment. With the introduction of such programs into Veterans Administration Hospitals, the use of restraints and of sedatives has dropped remarkably, and today the Veterans Administration for the first time in its history is discharging more neuropsychiatric patients than it is admitting. This, of course, is not due to their adjunctive activity program alone, but as a result of a dynamic total-approach concept of psychiatry of which adjunctive activity is an integral part.

Similarly, if we are to have an effective program for the *tuberculous*, emphasis must be placed on rehabilitation as well as upon case finding and definitive treatment. Too frequently, the arrested tuberculous patient is discharged from the sanitorium unable to cope with the realities of life, such as finding suitable employment and housing, meeting his family responsibilities, and learning to live within the limits of his disability. Rehabilitation within the tuberculosis sanitorium not only helps keep the patient psychologically and socially adjusted so that he will remain under treatment, but it helps prepare him for the problems he will face upon discharge. Adequate rehabilitation within the hospital and post-hospital programs of supervised work tolerance and necessary vocational training are as essential to tuberculosis control and total treatment as mass chest x-ray surveys and chest surgery.

With the introduction of rehabilitation programs in general hospitals, increased facilities for convalescent care and home care programs of medical, social, visiting nurse and visiting housekeeping services, many of the aged and chronically ill will not need to seek admittance to public homes. Many present residents could be restored either to employment, selective placement, sheltered workshop employment, or self-care within the home. But in order to accomplish this, there must be a complete program for evaluation and training within the hospital.

Age plus physical disability will prevent many chronically ill persons from returning to employment. Vocational placement, however, is not the only valid goal of rehabilitation. The factors of self-care and

ability to do productive work while still living in a hospital, home or other institution are also valid objectives. They are valid medically and socially for their effect on the well-being of the person, and economically, in that personnel and operating costs of the institutions or the patient's home are thereby reduced.

The physician has always been interested in the total welfare of his patient. Prior to World War II, however, the great majority of the medical profession looked upon rehabilitation as an extra-curricular activity of medicine, something dealing with social work and vocational training, but for which he had little concern and held but few medical implications. Today, that trend is being reversed, and although there are still many physicians who are unfamiliar with the aims and procedures of rehabilitation (in 1946 only 3 per cent of the new cases referred to state rehabilitation agencies and commissions for the blind were from physicians), more and more, medicine is beginning to recognize that medical care is not complete until the patient has been trained to live and to work with what he has left.

Smith and Evans define public health as all medicine that seeks to alter or better the patient's physiological status. There are two reasons why rehabilitation must be considered a part of public health. First, the rehabilitation program of this country nationally will rise or fall in proportion to its integration into the total public health program. Case finding, post-hospital supervision, the full utilization of all community resources and the other many facets of public health are essential to an integrated community rehabilitation program.

Second, the public health service must assume this responsibility, for, ironically, such services helped create the crisis we now face, a crisis created by sewage systems and the control of infectious disease, by nutrition and health education, by sanitary measures and food inspection, by everything that has been done to provide better health for the American people. It has made people live longer; long enough so that they eventually acquire chronic disease and its resultant physical disability. We are in a paradoxical situation, for, with every advance in medicine and public health, we add to the responsibility and the problems of rehabilitation.

The medical and health crisis which we face in this country today is not one of sanitation, vaccination or water purification; it does not involve typhus, malaria, venereal disease and the other problems which

can be brought under the focus of the microscope and within the orbit of our modern therapeutic knowledge. The patterns are established and the tools are available to meet these problems. Our present-day crisis is a slowly advancing, insidious, chronic epidemic, progressing just as slowly and surely as a serpigenous ulcer. As the years progress, it will cease to be epidemic and will become endemic, our self-created endemic of chronic disease and an aging population. Just as public health solved the epidemics created by bacteria, we can meet this epidemic of chronic disability only by creating new weapons and new understanding, taking both the medical and social responsibility for this Frankenstinean phenomena we have created. As Bortz so aptly summarized, "The society which fosters research to save human life cannot escape the responsibility for the life thus extended. It is for science not only to add years to life, but, more important, to add life to the years." This is our responsibility.

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CONCERNING VOLUNTARY AND INVOLUNTARY MOVEMENTS*

THE ROLE OF CORTICO-SPINAL AND SUBCORTICO-SPINAL MECHANISMS WITH A CONCEPT AS TO THE ORIGIN OF MOVEMENTS

ABRAHAM M. RABINER

Director of Neurological Service, Kings County Hospital
Clinical Professor of Neurology, Long Island College of Medicine

THE CLINICIAN is at times confronted with perplexing problems, as he attempts to correlate the presenting symptomatology with data obtained from anatomicophysiologic sources. In hemiplegia with spasticity of the involved extremities, he expects to demonstrate the Babinski sign, to find the abdominal reflexes absent and the tendon reflexes hyperactive. He is no longer surprised if tone is diminished rather than increased and realizes that this is especially so when the postrolandic area is the seat of pathology with resulting sensory impairment. He is aware also that a lesion of area 4 may result in decreased reflexes and no spasticity. He is not, however, as easily reconciled when in the spastic lower extremity of the hemiplegic, he cannot elicit the Babinski sign, or when a patient with amyotrophic lateral sclerosis presents hyperreflexia in all four extremities, spasticity in the lower limbs with bilateral Babinski: and yet the abdominal reflexes are brisk. He appreciates the relationship between the pyramidal and extra-pyramidal systems; that when a patient with paralysis agitans becomes hemiplegic, the tremors usually cease in the paralyzed limbs, and that as motor power is restored in some hemiplegic patients, they may then manifest abnormal involuntary movements. Numerous publications have added to this perplexity. Recently, a case was reported with lesions of the pallidum, substantia nigra and pyramidal tracts. The author was quite concerned because "despite the involvement of the pyramidal tracts, rigidity and tremor did not disappear." Another author describes a case with extensive

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atrophy of the frontal lobe and atrophy of the caudate nucleus, and wonders why there were no abnormal movements.

The motor system includes all movements produced by contractions of muscles. The neural mechanisms concerned with movements and posture consist of the lower and upper motor neurons. In the organization of the lower motor neurons, the cells of origin lie in the anterior horns of the spinal cord and in corresponding nuclei in the brain stem. From these cells, impulses pass to the muscles through ventral roots, peripheral nerves and cranial nerves. The organization of the upper motor neurons is, however, quite complex and has not been satisfactorily clarified. Two main systems have been described, the cortico-spinal or pyramidal system; with the cells of origin in the motor cortex and the efferent pathway in the pyramidal tract, and an extra-pyramidal system with efferent fibers from centers in the brain stem and basal ganglia.

In living creatures in which a central neuraxis can be recognized, the oldest motor centers are in the spinal cord. From the viewpoint of phylogeny, the lower motor neuron from anterior horn cell to end organ is the original, the simplest unit of motor activity. For lower animals, such as birds, reptilia and fishes, the highest motor center, their upper motor neuron, is the corpus striatum. The oldest part of this, the paleostriatum obtains in fishes, whereas in reptilia and birds, there has developed the putamen caudate complex, the neostriatum.

Mammals with intact basal ganglia but with cerebral cortex removed, can walk or perform all ordinary activities. They lack initiative and have few, if any, conditioned reflexes. Such animals go about instinctively; there is no direction and certainly no planning in their performances.

These subcortical centers seemingly control all motor activities in animals with a rudimentary cerebral cortex. As the cerebral cortex evolved in higher animals, many of the functions of the basal ganglia were taken over by it. The cortex, has, however, not replaced the basal ganglia, but their combined functions have become amalgamated into a more comprehensive motor mechanism. Normally then both the old and the new motor systems appear to coöperate. They are not antagonistic. The efficiency of the one requires the collaboration of the other. There is a fusion of the two motor systems functioning harmoniously.

When man assumed the erect posture and the forelimbs no longer were needed for walking, the cerebral cortex attained its greatest development. The big toe became the largest of the toes and acted as the fulcrum in support of physical erectness. Man now walked on the sole instead of the outer border of the foot. However, walking on his hind legs alone did not require the elaboration of the motor cortex. The subcortical centers still were in control of all routine motor activities. The frontal lobe evolved when the forelimbs developed the ability to grasp. Until then, the animal had few if any conditioned reflexes and all activities were instinctively induced. The animal now realized that grasping a weapon gave him physical superiority over enemies who had previously dominated him. He accordingly now added planning and premeditation to all actions and there resulted the dawn of the higher consciousness, that kind of consciousness which we human folk enjoy. There are varieties of movement where the degree of consciousness is an important factor, but there are other classes of movement which appear volitional yet are entirely independent of consciousness. Simple reflexes are constant and usually invariable but may be modified or even suppressed by other reflexes or by influences of higher levels of the nervous system. Functions like righting the body when equilibrium is threatened are reflexes mediated at the brain stem level. Voluntary movements are more complex and more variable. They are initiated by will and are deliberate acts. They may be planned or premeditated, but may also result from repetition of past experiences or may be acquired by learning. Such highly differentiated voluntary movements are dependent on the activity of the cerebral cortex. However, the initiation and execution of fine and skilled voluntary movements by the motor cortex require a normally functioning subcortical system. The cortex may modify or suppress subcortical activities or utilize all or part of these subcortical activities for the execution of its own purposes.

Thus the frontal lobe evolved, not as a locomotor system, but to make possible newer functions, refined unilateral movements, dexterity, the planning and premeditation of actions, the element of deliberation, volition or intention. Obviously, the newer muscle or bony postural alterations are represented in the new neural organization, the motor cortex. In the quadrupedal mammal with the basal ganglia as the dominant motor neural apparatus, the big toe posture is dorsiflexion. With

the assumption of erect posture, the necessary big toe posture is plantar flexion, maintained by the newer motor cortex. Removal of the influence of the motor cortex or its efferent pyramidal tract permits the older subcortical control to return and we have the Babinski toe sign.[1] Similarly, removal of pyramidal tract control results in return to the older postures of the foot (pes equino varus) and the flexed hand, so common in hemiplegia.

Until recent years, the designations cortico-spinal tract and pyramidal tract were synonymous and applied to all the fibers descending from the cerebral cortex to the spinal cord. In this respect, it was believed that interruption of the pyramidal tract resulted in impairment of voluntary motor power causing paralysis; removal of inhibition of tonus distribution to the muscles resulting in spasticity and of the tendon reflexes, causing hyperreflexia; the superficial reflexes lost their innervation and could not be elicited and the Babinski toe sign appeared.

Von Monokow[2] and Swank[3] demonstrated the presence of fibers in the medullary pyramid that did not originate in the cortex. Lassek and Rasmussen[4] by silver technique, demonstrated in the human medullary pyramid unmyelinated as well as myelinated fibers; that the myelinated fibers constitute 61 per cent of the pyramid, but that only about 10 per cent of these make up the pyramidal tract. Additional studies by Mettler,[5, 6] Levin and Bradford,[7] Verhaart and Kennard[8] and others indicate that half of all the fibers in the pyramids are cortico-spinal and arise from the precentral gyrus and the parietal lobe. The origin of the remaining 50 per cent of the fibers in the pyramids is not certain and they should not be referred to as cortico-spinal or pyramidal.

It seems evident then, that in hemiplegia with spastic paralysis, hyperreflexia, absent superficial reflexes and the Babinski sign, in addition to the pyramidal tract, fiber pathways other than those originating in the motor cortex are involved. The only functions affected that seem truly cortical are voluntary motor power, and the removal of the plantar flexion response of the big toe resulting in the Babinski sign. The superficial reflexes may have their synapse in the cortex or subcortex. The inhibition or regulation of tendon reflexes and of tonus are not functions of the motor cortex, but depend on influx of afferent impulses through the sensorium and subcortical structures. The clinical

picture of spastic hemiplegia then is due to pathology of a number of fiber tracts, amongst them the cortico-spinal or pyramidal tract and other subcortico-spinal tracts, all converging on the anterior horn cells in their common interest, the production of the forms of normal motor activity possessed by man. Destructive pathological lesions such as occur in vascular disease may affect all these fiber tracts, whereas other types of pathology such as amyotrophic lateral sclerosis may be more selective and interrupt some of the fibers, yet permitting others to function normally. Thus the abdominal reflexes may be present despite spastic paralysis with Babinski and hyperreflexia.

Syndromes including abnormal involuntary movements have for many years created much interest and perplexity. Not long ago, many of them were regarded as of psychogenic origin. The clinician has observed, analyzed and described the numerous variations. There is little remaining conflict as to these described entities. These movements have been grouped according to their rhythm, amplitude and timing and there is seldom serious disagreement in the designations so long as these criteria are maintained. It is only when attempts are made to correlate these movements with anatomic, pathologic or physiologic data, that pitfalls arise. It has been puzzling to understand the mechanism which halts many of these movements during sleep, whereas, others such as convulsive seizures occur in sleep. Similarly, much debate has ensued when, as a result of animal experimentation, it has not been possible to reproduce the type of movements observed in the human clinical syndromes.

In the main, the mechanisms responsible for the appearance of involuntary movements in clinical syndromes of the basal ganglia, have not been definitely established. From a critical analysis of the available data arising from clinical pathologic and physiologic studies, one must conclude that no final statement can be made concerning the functions of the striatum, pallidum and the related extra-pyramidal structures.

Many opposing theories have been formulated as to the role played by various components of the basal ganglia, cortical or other subcortical structures and their connecting pathways in the production of the dyskinesiae. Involuntary movements have been regarded by some authors as due to irritative lesions. Others have maintained that the pathologic lesions release other centers and thus permit the movements to appear. No such centers have been identified; certainly no stimulation

of intracranial structures has resulted in reproduction of any abnormal involuntary movements comparable with those present in disease of the basal ganglia. On the contrary, it is now stated that stimulation of the striatum produces inhibition of spontaneous movements emanating from the cortex. The globus pallidus had been regarded as inexcitable but more recent data would seem to indicate that the pallidum has a positive motor mechanism and that stimulation of it results in associated movement patterns involving the larger muscle masses (Mettler[9]).

Obviously, this positive motor phenomenon emanating from stimulation of the pallidum cannot be compared with the alternating tremor of Parkinsonism. Similarly, no absolute evidence is recorded suggesting that stimulation of any of the other basal ganglia structures has resulted in reproduction of the type of abnormal movements present in disease of these nuclei in humans. One may conclude then, that it has not been possible to reproduce by stimulation experiments, any of the dyskinesiae present in clinical syndromes of the basal ganglia. Such clinical syndromes occur only when the functions of these structures are in abeyance, due to destructive lesions.

Convulsive seizures may also be regarded as abnormal involuntary movements. They result from disturbed function of the cerebral cortex. It matters not whether the pathology is of the cortex itself or if the cortex is adversely influenced by pathology elsewhere or by metabolic or biochemical abnormalities in any portion of the body. These convulsive seizures differ from basal ganglia movements in two extremely important respects. Convulsive seizures occur with cortical lesions and can be reproduced by experimental stimulation of the cortex. Convulsive seizures occur during sleep whereas basal ganglia movements cease when the patient is asleep. Thus the only type of abnormal involuntary movement that can be reproduced by experimental stimulation, is the convulsive seizure which originates from the cerebral cortex but is not abolished by sleep.

If basal ganglia type of abnormal involuntary movements can not be reproduced by experimental stimulation of any part of the central nervous system, we must look elsewhere for their origin. Seemingly, these movements are abolished when consciousness is interrupted and recur immediately when consciousness is restored. The stimuli, therefore, seemingly enter through the sensorium, for when the curtain of consciousness is lowered, they are halted and do not then stream into

the organism. Whenever and wherever they enter the organism, these varying forms of molecular displacements traverse the ascending pathways. However, before they can reach the descending cortico- or subcortico-spinal pathways through which all motor impulses must pass to reach the final common motor pathway, important physiologic alterations take place. If this were not so, all animal life would appear in a state of disorder and unrest similar to that observed in the universe of inanimate objects and to which has been applied the designation "Brownian movement." These basal ganglia nuclear masses then alter, check, inhibit, divert, synchronize or neutralize. They modify the stream of these molecular displacements so that cortico- and subcortico-spinal pathways then transmit to the lower motor neuron, influences which result in the normal synchronized motor functions present in all animal life. When any of these basal ganglia are unable to function normally, there then passes through them on to and down through the descending motor pathways, those original unaltered molecular displacements which then produce in the musculature, the patterns of abnormal involuntary movements and tonus alterations which result in the clinical syndromes, the dyskinesiae that have been regarded as typical of basal ganglia disease.

Finally, unusual emotional factors such as fright and panic, often produce restlessness, tremors and other hyperkinetic phenomena. It would seem as though by suddenly overwhelming the resources of these basal ganglia structures, some of the entering molecular displacement patterns pass through unaltered into the descending motor pathways so that normal individuals may then manifest abnormal involuntary movements though there is no actual pathology in any portion of the nervous system.

Discussion

The lower motor neuron or final common motor pathway to the muscles receives varying types of influences from the higher centers in the brain. Many of these have their origin from subcortical centers whereas others are cortically induced. The subcortical areas concerned with motor activities are way stations through which many of the stimuli necessary for the performance of motor functions pass. These subcortical areas influence or modulate the stream of motor impulses. Nothing originates or is initiated in these subcortical structures. Simi-

larly, it is probable that the motor cortex has been evolved as a higher replica of these subcortical centers. From motor cortex, impulses arise and flow through the pyramidal tract to exert an influence on the lower motor neuron system. Whether such impulses can actually be initiated spontaneously in the motor cortex is problematic. We know that the cortex can be induced to initiate a motor impulse by electric stimulation. In this respect, it differs from the subcortical areas where electric stimulation has as yet not reproduced the type of movements observed clinically in destructive lesions of these areas. It seems, therefore, that in the normal human, impulses do not start in the motor cortex unless stimulated or influenced by afferent impulses from the postrolandic cortex or from subcortical structures. It would appear that all areas of the brain are dependent for the initiation of their activities on the influx of stimuli which enter the body through the sensorium.

A destructive lesion of the motor cortex results in cessation of a motor function, not of individual muscles but of groups of muscles participating in an act requiring dexterity or finer movements and which are under the control of the will or are planned or premeditated. Pathologic stimulation of such a cortical area may produce excess movement of the involved muscle groups (Jacksonian fit). All activities of the subcortical areas, as well as the postrolandic sensory cortex and most likely all areas of the cortex which receive afferent impressions, converge on the motor cortex and the resultant effects appear in the efferent pathways and are conveyed to the anterior horn cells. However, in the human, it is probable that if the cortico-spinal pathways are interrupted, no influences from the higher centers reach the anterior horn cells and there is no motor power, the affected part is paralyzed.

Abnormal involuntary movements such as chorea, athetosis and alternating passive tremors occur in patients in whom post mortem studies have revealed pathology in the subcortical structures, pallidum and substantia nigra in patients with tremor, and caudate and putamen in those having choreo-athetoid movements. Accompanying such movements there is usually some tonus alteration in the affected muscles. It is of more than passing interest that it has not been possible to reproduce any of these dyskinetic phenomena by electric stimulation of these nuclear masses. Though definite fiber pathways connecting these basal nuclei with the cortex have not been completely and accurately charted, sufficient data are at hand to warrant the belief that there are afferent as

well as efferent projection systems connecting the two motor systems so that they can collaborate in the production of normal motor activities. Lesions of these basal ganglia result in abnormal involuntary movements when the main efferent motor pathway from cortex to anterior horn cell is able to convey impulses. Often post mortem study of the brain in cases of hemiplegia reveals in addition to the lesion of the internal capsule. extensive pathology of the basal ganglia, yet during the entire illness there were no abnormal involuntary movements. Such patients, because of the basal ganglia changes, would have manifested dyskinetic phenomena if the cortico-spinal tract had not also been diseased. All surgical measures for relief of tremor in Parkinsonism owe whatever success is achieved to this requisite, that the cortico-spinal tract must function if pathology in the basal ganglia is to result in tremor or choreo-athetoid movements. Whether the surgeon excises the cortex (Bucy[10]), or interrupts the fibers in the anterior limb of the internal capsule (Browder[11]), or sections the dorso-lateral column in the spinal cord (Putnam[12]), the flow of efferent impulses through the cortico-spinal pathway is interrupted. Obviously the surgeons do not destroy all the efferent fibers for they do not produce permanent paralysis, though in all cases some motor weakness results. The tremor recurs if a degree of motor power impairment does not persist.

Study of such cases reveals some interesting data. For a short time after operation there is considerable motor power impairment. There may or may not be a Babinski toe sign. The Babinski may disappear in a day or two or persist. This is so also of the superficial reflexes. It seems evident that influences regulating tonus, impulses concerned with production of the Babinski toe sign, factors innervating the superficial reflexes, and those modulating the tendon reflexes travel in separate fibers in the cortico-spinal and subcortico-spinal tracts. All these activities may be abrogated in a lesion sectioning the entire pathway, but partial lesions may affect some of these and not affect others. On the other hand, we see patients who have had the dorso-lateral funiculus in the cord completely sectioned (as recommended by Putnam for treatment of tremor) in whom after a short space of time, there is little if any demonstrable residual motor weakness with return of the tremor, but with a definite persistent Babinski toe sign. In other words, pathology can occur in the pallidum and also the pyramidal tract without any alleviation of the tremor or rigidity. On the other hand, pathology

in the caudate nucleus may evidence no choreo-athetoid movements if there is also frontal lobe atrophy with implication of the cortico-spinal mechanism.

Conclusions

1. The cortico-spinal or pyramidal tract travels together with subcortico-spinal tracts through the corona radiata, internal capsule, brain stem and spinal cord.

2. All these efferent motor pathways end about the anterior horn cells and bring the collaborated influence of the higher centers on the final common motor pathway to the muscles.

3. Complete destruction of all these efferent motor pathways produces spastic paralysis, hyperreflexia, the Babinski toe sign and may abolish the superficial reflexes. The influences producing these functional alterations travel in separate fibers so that incomplete pathologic changes may result in some of these symptoms and permit other functions to continue normally.

4. For the motor cortex to function normally, the subcortical basal ganglia must be intact, and abnormal involuntary movements or altered tonus distribution resulting from pathology of the basal ganglia may not be manifest in the musculature if the motor cortex or the cortico-spinal tract is diseased.

5. Every type of motor activity is the end product of afferent stimuli, entering through the sensorium, and ultimately influencing the transmission of efferent impulses from the motor cortex through the cortico-spinal tract to the anterior horn cells in the cord.

6. Abnormal involuntary movements other than convulsive seizures do not occur if the basal ganglia are normal. It would appear that these basal ganglia nuclei arrest molecular displacements entering through the sensorium and do not permit their transmission through the cortico-spinal pathways. Disease of any of these subcortical structures permits the particular type of dyskinesia thus not adequately influenced to pass on to the cortico-spinal tract and appear in the muscles as abnormal involuntary movements.

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PSYCHIATRIC PERSPECTIVES OF TODAY*

GREGORY ZILBOORG

Consultant in Research and Psychotherapy, Butler Hospital, Providence, R. I.; Faculty, New York Psychoanalytic Institute

MAN, in so far as he is an animal, lives only in the present. The animal has no conception of time, it has no conception of what the present is. However, the conception of time which man does possess makes possible an orientation which is singular to man, and gives it the imprint of uninterrupted life from century to century and from generation to generation. Man is inclined officially to deny his exclusive animal interest in the present, and he accumulates a past to live on, while going through the present forever aspiring to and building for a better future. The extreme form of this particular characteristic is reflected only in the monastic life of devotion. In modified forms it lives in medicine, politics, and education. We always cling to tradition and try to carry it into a future of newer traditions blended with the old.

Hence, the tradition of celebrating important anniversaries; hence also the subject of this statement. In our zealous aspiration for a better future, we are apt to project our own ardent wishes into the days to come and then present them to ourselves as predictions, even prophesies, which are to be fulfilled. What follows should in no way be construed as an attempt to prophesy, because the future can never be known unless and until it has been reached and has become the current day. What is more in order and more in harmony with scientific realism is the possible visualization of the direction lines which lead into the future, the perspectives only.

In order to attempt such a visualization, one must make an effort to rid one's self for a moment or two of the popular illusion that the world has become a small place to live in, that space and time have been conquered, and that the pace of creative thought has become so accelerated that time is no longer of real essence. This may be true

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only in those cases when we want to kill *en masse*, or radio-photo a new lady's hat, or popularize a new tune. It is not true, however, of the curative art, nor of any other art; these take time, contemplation, earnest and repeated calculations—these will always take time. From this viewpoint a century is a very long period—its length to be measured by the events which have occurred, by the scientific road we have travelled, by the creative life man has lived. From this viewpoint, the century the closing of which is celebrated by The New York Academy of Medicine was long, arduous, impressive, and unutterably instructive.

One hundred years ago, in 1847, Johannes Brahms was a lad of only fourteen, and today he has been dead for half a century. Westphal was Brahms' contemporary; fourteen years old the year The New York Academy of Medicine was founded, he has been dead for fifty-seven years. Baillarger died a year before Westphal; at the time of the founding of the New York Academy, he had had enough experience and aggravation with refractory, negativistic mental patients to be led to invent (in 1847) a new tube for artificial feeding. One hundred years ago, Abraham Lincoln had just started his service in the Congress of the United States; his active political life was intimately connected with the most turbulent and most bloody period in American history. Lincoln has been dead for over eighty years. In 1847 Richard Wagner was thirty-four years old, and he has been dead now for sixty-four years. Claude Bernard was Wagner's contemporary; he has been gone for sixty-nine years.

In 1847 medicine had no real conception of infectious diseases; Pasteur was barely twenty-five years old. The whole field of infectious diseases was revolutionized by Pasteur, and he has been dead for half a century now.

George Beard was an eight-year-old boy when the New York Academy was founded. He lived to become a well-established physician and a doctor of repute. He died sixty-four years ago. It was he who introduced the term "neurasthenia," which became both famous and superannuated during only half of the New York Academy's existence.

In 1847 the world had yet to wait for nearly a decade for Freud to be born, and almost fifty years before his major contributions of psychoanalysis were published. Today psychoanalysis is a household term of the amateur and the professional, the ill-concealed quack and the well-trained specialist.

Griesinger's "Pathology and Therapy of Mental Diseases" appeared two years before the New York Academy was born. It was the first truly medical, systematic textbook of psychiatry, and it was epoch-making; yet it has become nothing more than a historical datum, and today we are almost as far away from Griesinger's autopsy-psychiatry as we are from the theory of animal magnetism. And while we happen to mention this hypothesis of Mesmer, it is pertinent to recall that it was four years before The New York Academy of Medicine came into being that James Braid published his "Neurypnology, or the Rationale of Nervous Sleep Considered from the Standpoint of Animal Magnetism." It was this publication that introduced both the concept and the therapeutic implications of that which Durand de Gros christened as "Braidisme," and which has become known as hypnotism. Hypnotism enjoyed half a century of great success, had declined, had even been discarded, and then was revived very recently in combination with a revised form of psychoanalysis—all this within one hundred years.

The American Psychiatric Association preceded The New York Academy of Medicine by some three years, and the time when these two organizations were born can rightly be called the era of the birth and growth of mental hospitals. It was the era of Dorothea Lynde Dix, whose "Memorials" to the Federal and to various State legislatures sounded the tocsin of the frightful conditions in the jails, private cellars, and out-houses where the mentally ill were kept. Dorothea Dix, more than any other person, fought for the building of State hospitals. She fought in New Jersey, in Pennsylvania, in Kentucky, in Washington, in England, in Scotland. Today these very State hospitals, burdened with a great past and a very grim present, are the object of considerable criticism and attack; more than any other medical institution, they demonstrate how long one hundred years may be, how medical progress ran ahead of the State's ability and willingness to discharge its duty toward the mentally ill.

Today psychiatry seems to claim a major role in medical education, in public life, in juvenile delinquency, criminology, penology, sociological and even international and military problems. The extraordinary growth of psychiatry in positive as well as negative popularity is almost miraculous, but it is very confusing too; this growth produced two streams of medico-psychological thought which created innumerable problems in medical education as well as problems of establishing solid

scientific standards in psychiatric methodology.

One of these streams of thought could be called that of psycho-sociological orientation. The psychiatrist of today, if he is to acquire a modicum of clinical understanding, if he is at all to understand his patients as persons, as going-concerns called human beings, must acquire some knowledge of anthropology, sociology, and history. He must be conversant with the emotional as well as the intellectual aspects of morality, ethics, religion, and philosophy. All this was sensed many years ago; the great psychiatric reformers of the end of the eighteenth and the beginning of the nineteenth century, like Boissier de Sauvages or Philippe Pinel, were steeped in philosophy, in classical letters, and in history. Already, even one hundred years ago, the importance of anthropology was definitely felt in some quarters. It was in 1847 that the German Society of Biologists founded and held the first meeting of a special group which they called the Section of Anthropology and Psychiatry. It is noteworthy that that meeting held in Aachen was attended by Virchow, who took part in the discussion.

The psychiatrist of today does not find the needed grounding in cultural anthropology, sociology, history, and philosophy, either in his graduate or postgraduate studies. He is forced to seek out things for himself and acquire and use whatever methodology seems easier or most palatable to him. As long as this lack of medico-psychological education persists, as long as these disciplines—which for purposes of designation only could be put among social sciences—remain only a matter of the curiosity and intellectual and moral self-discipline of the given physician who happens to stray into psychiatry, as long as these uncertain and scientifically shaky conditions persist, psychiatry is bound to become a rather vague and unruly system of thought, bound to suffer from clinical unclarities, scientific inaccuracies, theoretical vagaries, and practical anarchy. The fragmentation and the schizmatic eclecticism of the many psychiatric groups and subgroups bear eloquent, even though sorry, testimony to this lack of methodological foundation and to philosophical unsteadiness. From the standpoint of the promotion of clinical knowledge and the refinement of the curative art in present-day psychiatry, the perspective cannot appear too bright even to the most inveterate optimist. For as a contemporary thinker, who wrote in defense of theory in medicine, once stated, "The technical arts and their practice always threaten the liberal arts and it is the ever present

bastard combinations of these that are called Black Arts."*

Is not this the reputation of psychiatry in many quarters, and is not this reputation—even if fortunately undeserved—very difficult to refute before the eyes of the world of sciences? Our technological age militates against the increase of cultural and sociological education in medicine and thus does not promise much relief in the form of systematized, authoritative knowledge, except for the very, very few who are willing to risk enormous loss of time, economic security, and even civic growth. On the other hand, the ever-increasing demand on the part of the community for more and more psychiatrists makes the situation even more distressing, since efficiency alone, eclectic familiarity with terminology, and a few clinical facts cannot produce knowledge. How true this statement **is** may be judged from the fact that present-day psychiatry does not possess any satisfactory definition of mental illness or neurosis. A well-known psychiatrist was asked recently for a definition of a "well-adjusted person," and he promptly answered, "A person who feels in harmony with himself and who is not in conflict with his environment." The questioner at once asked, "Would you then consider an anti-Nazi working in the underground against Hitler a maladjusted person?", and promptly came the reply, "I withdraw the latter part of my definition." The questioner persisted, "How can you withdraw fifty per cent of your definition?" Moreover, we may add, our psychiatrist overlooked the fact that a goodly number of states of perfect harmony with one's self are distinctly pathological states to be found among certain euphorias as well as stupors.

Our efficiency of indoctrination, not being able to produce knowledge, is consequently unable to produce social, scientific, and professional virtue. The famous dialogue of Plato in which Socrates proceeds to investigate the headache of Charmides can serve as a fitting summary of the situation. Toward the end of what might be called the clinical "study" by Socrates, "Charmides, without realizing the irony, . . . admitted to Socrates that Knowledge is Virtue and that he himself [was] ignorant."**

In addition to this ignorance of substance, the psychiatrist suffers from yet another handicap which is overcome with yet greater difficulty and fraught with even greater dangers. This handicap is the

* Scott Buchanan, *The Doctrine of Signatures*. New York, Harcourt Brace, 1938, p. 5.
** *Ibid.*, p. 3.

singular essence of psychotherapy. At best, psychotherapy is a subtle art which cannot be taught; it is rather acquired by that which someone aptly called "practical contagion," by learning from one's teachers while observing them at work and not on the lecture podium.

Then, there is something even subtler than the technique of psychotherapy—it is its goal. When a patient has a laryngitis or bunion, the goal of the therapy is clear and incontestable. But let us suppose a patient has symptoms of anxiety, or character difficulties which impede his ability to work. Does restoration of his ability to work represent the true goal of psychotherapy? Let us suppose the patient's anxiety and compulsions or what-not have been removed, and let us suppose further that he still is unable to work because of some invisible and unconscious inhibitions. Is this patient to be considered cured, although he is still unable to work? Is he not apt to be considered plain lazy if he is poor, and well and fully recovered if he is rich? There is too subtle a line of distinction between idleness which is laziness and idleness which is enjoyment of permanent leisure.

The psychotherapist is thus confronted with issues of social values which creep into his psychotherapeutic goals; so do other values and prejudices creep into the business of psychotherapy, and the professional code required becomes more arduous and more complex than that of the Hippocratic tradition, which through the ages has become amplified and supplemented by our economic development and acquisitive propensities. Yet the study and teaching and learning of psychotherapy remain suspended in the air, as it were. They are left to the private judgment of anyone who takes them up, and are devoid of authority as well as tradition. The perspectives in this field are not any too bright either, although the loose and vague "moral treatment" of about one hundred years ago has been abandoned, and there are groups, such as the Freudian psychoanalytic institutions, in which at least one type of psychotherapy is considered and taught in a systematized and authoritative way. Yet the vagueness, the inarticulateness, and the confusion about the therapeutic goals are heavy shadows in the path of the Freudian, as much as they are an obscuring handicap to the non-Freudian, neo-Freudian, or psychotherapist at large.

As one casts a glance into the future and searches the psychiatric horizons, one cannot help but feel uncertain, and even puzzled; for our practical, pragmatic, highly technological age bodes ill for the

possible revival of the older tradition which demanded from the medical psychologist the qualifications of both erudition and clinical knowledge.

It is possible, of course, that a reaction may set in and that medical schools and doctors and life itself may demand the return to cultural education and to the study of man in his totality. One does not want to say that this is doubtful—but uncertain it certainly is.

In the meantime, the accumulation of borrowed theories from various fields by a multitude of contending exponents of psychological speculation do not really produce true knowledge of man, and clinical and theoretical psychopathology gives more the impression of learned ignorance than true learning, which is always humble and seldom, if ever, divisive.

I said that the end of the century which is here considered is marked by two streams of psychiatric orientation. One has just been sketched. The other was first noticed upon the medical scene under the name of "psycho-somatic medicine"—a significant and very telling phenomenon. Not new,* to be sure, but renovated by the very spirit of our practical, pragmatic age, psycho-somatic medicine established itself both as a restatement of an old error and a reassertion of a renewed unity in medicine. When some hundred years ago Jacobi and Nasse introduced the term, they not only hoped to reconcile the extremists of idealistic and materialistic psychiatries. They actually made an effort to snatch psychopathology out of the hands of the speculative philosophers and reincorporate it into medicine, to which it had belonged in the days of Hippocrates and Galen and the great doctors of the Renaissance. The dichotomy of soma and psyche was but incidental, or even accidental. In this respect, almost the same conditions prevail today as some hundred years ago.

The dichotomy of mind and body is but an artifice, and modern medicine as well as modern psychology knows it quite well, regardless of the various philosophical biases. It is quite doubtful, however, whether the average physician, considering his schooling and cultural background, appreciates that the hyphen in psycho-somatic is only a matter of spelling, that the *o* in "psycho" is merely a matter of formal, etymological construction, and that neither denotes any separation,

* Gregory Zilboorg, "Psychosomatic Medicine, a Historical Perspective," *Psychosomatic Medicine*, vol. VI (1944), No. 1, pp. 3-6; "Humanism in Medicine and Psychiatry," *Yale Journal of Biology and Medicine*, vol. XVI (1944), No. 3, pp. 217-230.

natural or artificial, of one part of man from the rest of him. This warning cannot be sounded too often or too vigorously, because medicine has been snubbing psychiatry too long, and psychiatry too long has been too timid in asserting its own scientific methodology. Consequently, there is a sort of cultural lag, a tendency to hide one's own prejudices behind hyphenated terms and still proceed along lines of old, organic formalism. The tendency to repeat old errors thus creeps upon us. The danger of this to a scientific psychiatry cannot be overestimated. As Buchanan, whom I have quoted repeatedly here, puts it, "It would be a mistake to try to add the numbers that stand for wave-lengths and hope to get a result that would still be wave-lengths; it might be still more dangerous to train [an apparatus] on a smile-illumined face and read off the vibration rate of our sweetheart's personality . . . A great deal of the interdepartmental talk between sciences and all work in applied science run the risk of being Babelized in this fashion."*

This type of "interdepartmental talk" certainly denotes a great deal of freedom, which makes one feel free to indulge in the same type of "learned ignorance" into which the speculative psychopathologist so frequently falls. For this freedom seems to allow one to take liberties with clinical issues beyond what is permissible by empirical medicine. This methodological cul-de-sac was well described by Buchanan,** when he said that there have been times "when freedom to think has become freedom not to think, and freedom of thought has resulted in freedom from thought."

This methodological impasse imposes upon us the duty to seek a way out onto the open road which transcends the confines of the experimental laboratory proper. To leave the experimental laboratory entirely would be fatal to both medicine and psychiatry, but to limit one's self to the so many cubic feet of laboratory space, even with occasional visits to the bedside, means to leave aside and perhaps fail to learn the most important language in which man speaks. It is true that measurable data, lines, and figures are the telling language of the laboratory investigator. "But there are still other languages which he will have no admitted part in, the language of the emotions, the language of trial and error operations, the language in which he has

* Buchanan, *op. cit.*, p. 38.
** *Ibid.*, p. x.

isolated and concealed his pre-conceived ideas. It is only necessary here to point out that his success in the laboratory is based on a training and skill which are finely mixed products of the emotional arts by virtue of which he prides himself on his coolness and impartiality, of the manual arts which he has practised from childhood up, and the cultural heritage which he could not escape. These are the stuff from which the originality of genius, the laboratory atmosphere, and the international organization of science are made."* In other words, the present-day physician must learn the language with which psychiatry is primarily concerned, and he must learn to discount certain elements of his own emotional, mostly unconscious biases, the existence of which he heretofore did not even suspect and the non-existence of which he proudly asserted in the ivory tower of laboratory research data. Still, in other words, the introduction of psycho-somatic medicine has added to the psychological and scientific burdens of medicine and surgery; it made clinical medicine and surgery even more interesting, but ever so much more complex; it relieved psychiatry of none of its duties, but it also exposed it to considerable danger, of which there are many signs on the horizon. The chief danger of them all is that of drifting into the old, outworn dualism of mind and body and that perilous path of psychophysical parallelism in which the old James-Lange, Weber-Fechner or the newer Pavlovian formulae become substitutes for the knowledge of how man functions in sorrow and in joy, in poverty and in riches, in peace and in war, in living and in dying. The temptation to reduce everything to anatomico-physiological equivalents for the psychological facts themselves, is very great indeed—just as in the days of Lavater, Gall, and Spurzheim cerebral localization threatened to take the place of understanding the human mind and produced what has become known as "cerebral mythology."

Nor will a steady accumulation of psycho-somatic facts alone avert the danger. In the eyes of some observers of medicine, many of us have already "sunk to the level of grammars without rules, or, as the laboratory scientist would have it, facts without hypotheses"—or, we may add, even hypotheses without facts, a state of affairs which may be observed among many psychopathologists whose speculative purity divorces them from science, as well as among many psycho-somatologists whose scientific solidity does not permit them to feel quite

* *Ibid.*, pp. 29, 30.

at home with psychological factors which have no visible somatic equivalents.

Somewhat paradoxically, to be sure, we may summarize the present situation as follows:

Medicine and psychiatry have completed the circle in the course of the past century—and they have become reunited. Both accumulated during this period many more facts than were in the possession of medicine one hundred years ago. In the process psychiatry developed a sort of hyperplasia of theoretical viewpoints while medicine, burdened with palliative empiricism, began to suffer from a hypoplastic imagination and a hypertrophy of instrumental techniques. Man, as a patient and as a human, civic, and spiritual unit, gained a great deal by these developments, but as a result of the almost complete divorcement of psychiatric and medical thought, man began to lose even more than he had gained.

Whether the nearest future will bring about a proper synthesis and thus enrich the means of the curative arts and refine our understanding remains to be seen. The results unfortunately do not depend entirely upon medicine or psychiatry, or on science alone for that matter. For the severe crisis in which our whole civilization finds itself will affect us by the impact of historical forces more than we can, more than we dare to, tell ourselves.

HOSPITALIZATION OF VETERANS

A Report by the
Committee on Public Health Relations
of The New York Academy of Medicine

Medical care and hospitalization have become important matters of national and local concern, and there are many facets of both questions which call for thorough study and understanding. Hospital provision for the veterans, as one of the large components of the general problem, requires fundamental consideration.

The problem was looming large in 1932, when the Committee on Public Health Relations undertook a study of it and published a report. At that time there were only 4,000,000 veterans; the number has since increased to 18,733,000, and the ramifications of the problem have grown accordingly. In 1945, at the request of the Veterans Administration, we made a critical study of the veterans' hospitals for tuberculosis in New York State. The present study, even as that of 1932, deals primarily with general aspects of the entire problem.

Expanding Benefits. During and immediately following the first World War, Congress, conscious of the evils associated with the Civil War pension system, enacted laws to provide medical care for veterans who had been injured or had become ill while actually in service. The present policy of hospitalizing veterans with non-service-connected disabilities was initiated in 1924, and since that time the trend has been toward the provision of hospital care for all veterans with every kind of illness or disability, whether incurred in service or not. Admission of non-service-connected cases was at first limited to available beds and to veterans unable to pay for private hospital care. Subsequently, the interpretation of the law was apparently relaxed, and more hospitals were built in order to make beds "available" for the group with non-service-connected disabilities. Authority for hospitalization of non-service-connected cases was suspended for a short time in 1933 for reasons of economy, but it was reinstated the following year. The 1934 law added a requirement that the veteran must affirm under oath

that he is financially unable to pay for his own care, but specifically provided that his statement be "accepted as sufficient evidence of inability to defray the necessary expenses."

The Committee is reliably informed that there has been widespread abuse of this provision in connection with the application for hospitalization on the part of veterans who seek hospital care for non-service-connected disorders; comparatively affluent men are said to be signing the statement, and the Veterans Administration is by law compelled to accept these affidavits without investigation. We have been informed that the veterans' organizations have fought any attempt to apply a means test. As a result, persons who could afford private care are reported to have taken advantage of the free service, even though they must sign a statement carrying a penalty of a $1,000 fine or a jail sentence for perjury. Indeed, the abuse in individual instances has become so flagrant that the Administration has warned veterans' organizations to police the situation, for neither Congress nor the taxpayers will tolerate it indefinitely. Dr. Howard A. Rusk, writing in the *New York Times*, February 22, 1948, stated that no case of this kind has ever been prosecuted. He cited one instance in which a veteran who died in a Veterans Administration hospital was found to have left an estate of $250,000. In that case the government recovered the cost of the man's hospital care.

A recent extension of the conditions under which service connection may be established may create more service-connected claims for hospitalization. This is contained in a ruling by the Assistant Administrator of Claims of the Veterans Administration, issued early in 1948, which the American Legion, in its Circular No. 13, dated March 22, 1948, characterized as a "significant declaration of policy." According to this ruling, chronic disease need not be diagnosed within the one year which has been set for the establishment of service connection; a relationship may be established after that time limit if it can be shown that symptoms of a particular disease existed within the one-year period, although such symptoms may not have appeared significant when first observed. If there have been no manifestations within the one-year regulatory period, and yet a chronic condition becomes manifest later on, the case will, in the language of the ruling, "be the subject of further development in an endeavor to determine if there were symptomatology within the required period which may now be

identified or evaluated as manifestation of the chronic disease to a degree of 10 per cent or more." Thus service connection may be established for conditions that have only a presumptive relationship to war service.

One year after the enactment of the 1924 enabling act, the ratio of service-connected to non-service-connected disabilities was 5 to 1; that is, out of 6 veterans in the hospitals, 5 had service-connected disabilities and one did not. In January, 1949 the ratio was about 1 to 2; that is, out of every 3 veterans in the hospitals, 1 had a disability incident to his war service and 2 did not. There has been, therefore, a complete reversal of the situation as it existed before the 1924 amendments to the veterans' laws were adopted. The expansion of hospital facilities has seemingly been based on an intention to provide for all veterans rather than on the originally stated policy of admitting the non-service-connected cases only when beds were available. With the change in policy has come the development of a hospital empire of more than 100,000 beds, to which enormous additions have been planned; more than three quarters of a billion dollars were appropriated in 1947 for additional hospitals. Congress authorized a huge building program in spite of the fact that at various times several thousand beds have been out of service because of a shortage of the personnel needed to operate them.

Present Status of Hospital Facilities for Veterans. The 126 hospitals now operated by the Veterans Administration are constantly crowded far beyond the level generally accepted by hospital authorities as desirable for efficient service. On January 31, 1949, the number of beds actually in operation was 104,414, and the number of patients in these hospitals was 97,079, or an occupancy rate of 93 per cent. In the 33 neuropsychiatric hospitals the occupancy rate was higher, 95 per cent; in the 18 institutions for the tuberculous it was 92.9 per cent, and in the 75 general medical and surgical hospitals, 90.7 per cent. It should be emphasized that these occupancy rates are based on the number of available beds; that is, the total number of authorized beds minus the beds that are not in operation for various reasons.

According to official statistics issued as of January 31, 1949, there were 97,079 patients in veterans' hospitals and 13,474 in Army, Navy, state and community hospitals, a total of 110,553. Approximately two thirds of all these patients, 73,821, were hospitalized for conditions

that bore no relation to their military service; the corresponding figure in 1925 was about 20 per cent. The following is taken from the official statement:

Patients Hospitalized by the Veterans Administration, Jan. 31, 1949

Total	110,553
In VA Hospitals	97,079
Veterans with service-connected disabilities	31,978
Veterans with non-service-connected disabilities	65,101
In non-VA Hospitals	13,474
Veterans with service-connected disabilities	4,754
Veterans with non-service-connected disabilities	8,720

Patients with Tuberculosis and Neuropsychiatric Conditions

Service-connected		*Non-service-connected*	
Psychoses	22,304	Psychoses	25,875
Other neuropsychiatric conditions	1,968	Other neuropsychiatric conditions	5,283
Tuberculosis	6,726	Tuberculosis	8,380
Total	30,998	Total	39,538

Thus it may be seen that as of January 31, 1949, the number of beneficiaries with war-connected disabilities was only 36,732 (31,978 in VA hospitals and 4,754 in non-VA hospitals), for whom the facilities now available are more than sufficient.

An analysis of the service-connected cases indicates that 22,304 were suffering from psychoses, 1,968 from other neuropsychiatric conditions, and 6,726 from tuberculosis, or a total of 30,998 in these three categories. When this is subtracted from 36,732 service-connected cases, it is apparent that only 5,734 service-connected cases are in hospitals for the general run of medical and surgical conditions. That is the reason why the Chief Medical Director of the Veterans Administration holds the opinion that in order to maintain an educational and research program attractive to competent personnel, it is necessary to admit a certain number of patients with non-service-connected conditions.

The existing facilities for 110,553 patients are more than adequate to provide for all the patients whose disabilities resulted from war service, plus an additional complement of those with non-service-con-

nected disorders. But here again it should be realized that of the 73,821 veterans hospitalized for non-service-connected disabilities, 25,875 are psychotic, 5,283 have other neuropsychiatric disorders, and 8,380 have tuberculosis, a total of 39,538 in these three categories. The great majority of patients of this description are likely to be public charges, and if the Veterans Administration can provide for them, this will relieve other public authorities, state and county, from carrying the burden. We realize that in the case of tuberculosis, there is a certain hardship in the fact that patients are far away from their home communities, a situation that always leads to more numerous discharges "against medical advice." In spite of the improved service in Veterans Administration hospitals in the last few years, a recent study* indicates that except where special rehabilitation programs have been carried out,** the percentage of patients leaving against medical advice is still somewhat higher than that in the better civilian sanatoriums and hospitals for the tuberculous.

Allowing, then, for this burden of non-service-connected patients to be carried by the Veterans Administration, there remain 34,283 (73,821 less 39,538) of patients with general medical and surgical conditions not related to their military service, nearly 6 times as many as the service-connected cases in that category. If the Chief Medical Director's contention be accepted that he should have for educational purposes a number of non-service-connected patients equal to that of service-connected ones, roughly 6,000, there will still be about 28,000 who should not be hospitalized at government expense. Selection of the 6,000 who should be allowed should be made from those veterans who are economically unable to meet the cost of hospital care and those who have or have had a service-connected disability, but in addition develop ailments not traceable to their war service. If this were done, the present building program of the Veterans Administration would still far exceed the needs of the service-connected cases.

In the light of these facts, it is evident that all the expansion now in progress and any that is projected for the future will be for the care of veterans suffering from complaints in no way related to their military experience. Congress has recently authorized the construction of 89

* Tollen, W. B.: Irregular Discharge: The Problem of Hospitalization of the Tuberculous. Public Health Reports. 63:1441-1473 (Nov. 5) 1948.

** The Swannanoa Plan: The Veterans Administration Rehabilitation Center for Tuberculous Patients. Veterans Administration Pamphlet 10-26. Veterans Administration, Washington, D. C., December 1948.

new institutions, which would make available 54,000 new beds, plus additions to 11 existing hospitals. Some of these facilities will replace those in temporary buildings, which will be gradually decommissioned. It appears that if the authorized building program were completed the total number of beds would approximate 150,000. It is reported that the veterans' organizations are pressing for further construction to make available 300,000 beds in the next twenty years. If the presently authorized expansion is carried out, the ratio of beds to veterans will be 8 per thousand; with 300,00 beds there would be 20 per thousand, assuming that there will be 15,000,000 veterans alive in 1970. This ratio is in contrast to that of 4.5 beds in general hospitals per thousand of the entire population, including men, women and children.

It must, however, be stressed that the Medical Department of the Veterans Administration is not in favor of the indefinite expansion of the hospital system. The Chief Medical Director has stated that he favors an upper limit of 120,000 beds as the largest number that can be staffed and operated efficiently. The Committee considers this number as the top limit.

Since this Committee began its inquiry into the situation, the Committee on Federal Medical Services (the Voorhees Committee) of the Hoover Commission on Organization of the Executive Branch of the Government has issued its report, in which the activities of all federal hospitals are reviewed, and sweeping changes are recommended.

The Voorhees report makes the recommendation that all the medical services of the Veterans Administration, including the outpatient services in the regional offices, be consolidated with the general hospitals and certain station hospitals of the armed forces, the hospitals of the U. S. Public Health Service, and St. Elizabeth's Hospital under a National Bureau of Health. Another "task force" of the Hoover Commission, the Eberstadt Committee on National Security Organization, made a similar recommendation. Furthermore, these reports point out the huge cost of the Veterans Administration program; it ranges from $20,000 a bed in the larger units to $50,000 in the 100-bed units, which, incidentally, cannot be satisfactorily staffed. There are already in existence 17 hospitals so located that it is difficult to assemble staffs for them, and 12 of those being planned are also in poor locations as far as medical availability is concerned. The report comments that this situation is a disservice to veterans and a waste of tax funds.

Shortly after the Voorhees report appeared, with its analysis of the wasteful expenditure on veterans' hospitals, the Administrator of Veterans Affairs announced that on the order of President Truman plans had been made for the cancellation of 24 of the projected new hospitals and a reduction in size of 14 others, a total reduction of 16,000 beds. It was stated that the elimination of these institutions would result in a saving of $280,000,000. The reasons given for the cancellation were: (1) the difficulty in obtaining staffs; (2) the large proportion of beds for non-service-connected patients, nearly twice as many as will be needed for the estimated maximum load of those with service-connected conditions; (3) longer serviceability than was expected of the temporary hospitals taken over from the armed forces at the end of the war; and (4) delay to afford the Veterans Administration opportunity for further study of its program.

Veterans' organizations have expressed opposition to the proposed consolidation of all federal hospital facilities and to the cutback in construction ordered by the President. The matter is presently being vigorously opposed in Congress. It is contended that the quality of medical care for veterans would be lowered and that the adjudication of veterans' claims would be adversely affected if medical and hospital services were separated from the administrative set-up of the Veterans Administration. A special subcommittee of the Senate Labor and Public Welfare Committee has recently conducted hearings on the proposed retrenchment program.

Representatives of the American Hospital Association who appeared before the Senate group were of the opinion that the President's order should be supported on the ground that the veteran himself would be the first to suffer if a mammoth hospital system were constructed without prospect of recruiting efficient staffs. They expressed no opinion as to particular hospitals that were designated for elimination from the program, but recommended, as have others, that if in the future, additional beds were needed for veterans, they should be provided through the Hospital Survey and Construction Act.

Lack of Integration in Hospital Planning. In its original report (1947)* the American Hospital Association brought out the fact that although overall planning and integration of federal hospital programs have been repeatedly recommended, the Veterans Administration "has

* "Federal Hospital Planning, with Particular Reference to Care for Veterans." American Hospital Association, 1947.

proceeded on the basis of minimal integration with other federal hospital systems and none whatever with the nonfederal hospital system." The Hospital Survey and Construction Act provides for a council with responsibility for planning an integrated hospital system for the country, but its planning is handicapped by the exclusion of federal hospitals from consideration. This exclusion has led to plans which will mean a duplication of facilities for a large group, estimated at one seventh of the population. Veterans are being counted twice in the planning for hospital expansion; they are included in the population estimates used as a basis for community hospital needs and also in the potential clientele of the Veterans Administration. Since this incongruity was brought out, the question has been under study by the U. S. Public Health Service. The American Hospital Association has emphasized that the veterans have always been in the population and have been cared for in the existing hospitals; it is only the accident of war that has thrown them into a separate category. The medical care of veterans should be incorporated in the whole medical fabric of the country; they should not be segregated into a separate class.

The Voorhees report points to the harmful effect of the expanding facilities on the community hospital system of the country. The report comments:

> "The bald fact is that at the same time that the Government is spending up to $75,000,000 per year to build up community hospitals, it is in effect tearing them down by disastrous competition. At the same time, it is reducing their incomes by taking away a large class of patients who would normally come to them."

It is not only in nationwide planning that the Veterans Administration has ignored the voluntary hospitals; local planning also meets obstacles. When the Hospital Council of Greater New York was formulating the Master Plan for New York, the veterans' hospitals in this area refused to participate in any way in the planning for the hospital needs of the city, in spite of the fact that many of their patients are citizens of New York and were therefore counted in the population to be served by the Master Plan. A new hospital is even now being erected in Brooklyn and one is in prospect for Manhattan, but there has been little coordination with the local needs of New York City, in spite of the efforts by the Hospital Council of Greater New York.

There is, however, a glimmer of light discernible of a possible change in attitude. That the Veterans Administration is beginning to take cognizance of a need for coordination with community resources is indicated in the previously quoted study of veterans leaving the hospitals for tuberculosis against advice. The medical analyst of the Veterans Administration, after ferreting out the factors which cause a veteran to leave the hospital against advice, made the following statement:

> "The Veterans Administration by itself cannot solve the problem even for veterans. Community social and health agencies, including local and state tuberculosis associations and veterans' organizations, must help. VA hospitals with all the staff and material resources obtainable cannot prevent the damages and deficiencies that are a byproduct of our modern way of life, nor can they alone supply the remedies for our social inadequacies."

The need for integration of hospital care for veterans with local community activities was apparently considered when arrangements were concluded for home care of veterans with service-connected disabilities and for hospitalization in their own communities if beds were not available in veterans' hospitals. However, for various reasons, this is not working out satisfactorily everywhere. There has been a decline in home care and in the use of community hospitals and a concomitant increase in Veterans Administration clinics in large cities.

Proposed Remedies.

I. The first recommendation made by this Committee in its 1932 report was:

> "That the hospitalization of veterans for non-service-connected disabilities be discontinued, not alone because it is wasteful, but also because it is reprehensible class legislation and totally unfair to the rest of the country."

The Committee still fully adheres to this principle as a matter of public policy, but it realizes that no immediate change from established policy can be effected. Moreover, the crowded conditions of all state hospitals for mental disease and of many tuberculosis hospitals, as well as the fact that most patients with these two conditions are or are likely to become medically indigent, make it desirable that the Veterans Administration hospitals continue to admit non-service-connected cases

in those two categories. It is also realized that the reorganization of the medical service of the Veterans Administration since the end of the war under the able leadership of General Hawley and of his successor, Dr. Magnuson, has brought about great improvement in the administration of the veterans' hospitals and the quality of medical care rendered. Of particular importance is the establishment of affiliations with medical schools, a relationship which should be preserved, even though the eventual scope of the medical benefits to veterans be diminished.

In view of these considerations, the admission of a sufficient number of non-service-connected cases to assure a balanced research and teaching program might be justified. However, these patients should be selected from those unable to pay for their own hospital care and those of service-connected status who develop illnesses or disabilities unrelated to their war-service illness or disability.

II. The available bed complement in the Veterans Administration hospitals is more than adequate for all the reasonable hospital needs of the veterans with service-connected disabilities, and an uppermost limit should be set by Congress without further delay. We have been authoritatively informed that 120,000 is the largest number of beds that can be efficiently maintained. Both the American Hospital Association and the American Medical Association have urged that Congress place a definite ceiling to the expansion of hospitals for veterans.

III. A greater utilization of nonfederal hospitals would have reduced the necessity for the present vast extension of federal hospitals for veterans. The Commission on Hospital Care, in its report issued in 1947 following a three-year study, recommended the use of voluntary hospital facilities for governmental beneficiaries. The Voorhees report emphasizes that the expenditure in local communities of a fraction of the cost of veterans' hospital beds could furnish hospitalization for veterans near their homes. Economies could be effected by the addition of beds to existing institutions, if necessary. In Canada, where the responsibility of caring for veterans raised the same problems as in the United States, civilian hospitals have been extensively used, and in many instances, the government financed additions to community hospitals rather than build entirely new institutions for the care of veterans. There the Department of Veterans Affairs has stationed a liaison officer in each hospital where veterans are hospitalized. He

exercises no control over the running of the hospital, and the hospital authorities feel that he is there to protect both the institution and the veteran.

After the first World War the Veterans Bureau originally planned to hospitalize veterans at least partially in the existing community hospitals, and contracts were made with many institutions to provide the requisite care. But these contracts were allowed to lapse, and the great veterans' hospital building program was begun. It was costly and notoriously inefficient. At present from 12,000 to 14,000 veterans are cared for in other than veterans' hospitals, of which some are community hospitals. Those who have had opportunity to observe the arrangement report that it is advantageous both from the point of view of service rendered and from the standpoint of the remuneration received by the hospitals.

A possible hindrance to any extensive use of existing nonfederal general hospitals is the present crowded condition of most of them. A recent report by the American Hospital Association showed that occupancy is at present 82.5 per cent. It should be borne in mind, however, that the greatest utilization is in semi-private accommodations (90 per cent) and that ward beds are occupied only 60 per cent. Many hospitals find it necessary to close some part of their ward capacity. The number of ward beds out of service was said to have been as high as 36,000 in August 1947. Utilization by the Veterans Administration of available ward beds in the voluntary hospitals would not only provide ready facilities for veterans near their homes but would add much-needed income to the financially hard pressed hospitals.

IV. Another possible method of simplifying and to some extent checking the growth of the veterans' hospital system has been suggested by the American Hospital Association. This is to decentralize the system by placing control in the hands of the states and financing it by grants-in-aid. This plan would facilitate coordination with the nonfederal hospital system as it expands through the Hospital Survey and Construction Act.

As an alternative, it was suggested that if a limitation were set on the number of Veterans Administration beds, an integrated medical and hospital care program could be carried out for low-income groups, with the low-income veterans receiving federal grants-in-aid and using

local hospitals. Under that kind of arrangement it would be possible to plan hospital facilities for the population as a whole on an economical and effective basis.

V. Still another means of reducing the need for beds would be to expedite the procedures in veterans' hospitals so as to bring about shorter stays of patients. This is being done in many voluntary hospitals, where special medical committees are set up to pass judgment in individual cases on the possibilities of shorter hospitalization periods. The clinical material in veterans' hospitals is being diluted, and public funds are being wasted by the reportedly prolonged hospitalization.

VI. A stricter medical policy regarding hospital admissions might likewise result in reducing the load carried by the veterans' hospitals.

VII. Since many veterans are beneficiaries under various voluntary prepaid insurance plans covering costs of hospitalization and medical care, the Veterans Administration should advise them to make use of their contracts and seek hospitalization in the hospitals of their own communities. It has been reported that in some instances veterans who might well take advantage of the voluntary insurance plans do not do so because they expect the government to furnish such hospital and medical care as they may need. The Voorhees report suggests that the government might provide for the care of veterans with acute non-service-connected illnesses through voluntary insurance under either a private or a governmental plan.

Recommendations

The Committee on Public Health Relations of The New York Academy of Medicine submits herewith its report with the following recommendations for consideration by the general public, the Eighty-first Congress and the Veterans Administration.

1. As a matter of sound public policy, the Committee reiterates its recommendation of 1932 that federal responsibility for the medical and hospital care of veterans be limited exclusively to those with service-connected disabilities, except that the tuberculous and mentally ill veterans should be provided for, regardless of the origin of their disability. The comprehensive provisions in the present laws as they have been administered constitute class legislation and are detrimental to the best interests of the country. Since under existing arrangements the high quality of medical service in the veterans' hospitals can be main-

tained only if there is a variety of clinical material of interest and educational value to the medical staffs, the Committee does not object to the admission of a limited number of patients with non-service-connected general medical and surgical conditions. There would seem to be no justification, however, even for teaching purposes, for this group in any hospital to exceed 50 per cent of the total number of patients with general medical and surgical illnesses. The Committee is of the opinion that sufficient clinical material should be available through the admission of (a) patients who have been treated for service-connected disabilities and who subsequently develop non-service-connected disorders, and (b) veterans with non-service-connected illnesses who are unable to finance their own hospital and medical care. Ample clinical material for teaching purposes would be available if all the hospital services of the federal government were brought under a united administration.

2. The Committee recommends that in the group of veterans with non-service-connected illnesses admissible to veterans' hospitals should be included those with neuropsychiatric disorders and tuberculosis. Even if all veterans suffering from these two types of chronic conditions were accommodated, the existing hospitals would still afford room for a considerable number of patients with general medical and surgical conditions.

3. The Committee also recommends that Congress amend the laws to make it possible for the Veterans Administration to investigate claims by veterans with non-service-connected disabilities of their inability to pay for hospital care.

4. In view of the existing ample provision, the Committee urges that Congress place a limit to the number of hospital beds for veterans, this limit not to exceed 120,000 beds.

5. The Committee recommends that for reasons of economy the unutilized facilities of other governmental hospitals, which according to the Voorhees report to the Hoover Commission number over 46,000 beds, be made use of before provision is made for additional hospital accommodations for veterans. Large economies in personnel and costs could be effected if the federal medical services were to be integrated into a united medical administration.

6. In the interest of better planning for hospital needs throughout the country, the Committee recommends that the veterans' hospital

services be coordinated with those of voluntary hospitals in order to prevent further costly duplication of facilities. The Committee endorses the position set forth by the Voorhees Committee:

> "The solution is obvious—not to expand the Federal system, but to extend limited aid to the community system. This should be done by partial assistance in new construction for general medical and surgical hospitals, to at least the extent that is necessary to provide needed facilities for Federal patients, and to contract for such care in such institutions."

7. The need for hospital accommodations in veterans' hospitals can be materially reduced by the employment of procedures such as are being practiced in voluntary hospitals to shorten the unnecessarily long stays of patients, and by a strict admission policy based on medical necessity. The Committee recommends thoughtful consideration of these two possibilities.

8. In the interest of the public health, the medical, nursing, and technical resources of the country should not be unreasonably diverted from the civilian to the governmental hospitals.

9. The Committee urges on Veterans Administration authorities that they encourage ill veterans who are subscribers to voluntary prepaid insurance plans covering medical and hospital care to make use of the benefits provided and to seek accommodation in their community hospitals for the periods to which they are entitled under their contracts, and to consider the recommendation of the Voorhees Committee that insurance be provided by the Government for those unable to provide it for themselves.

Approved by the Committee on Public Health Relations of The New York Academy of Medicine on April 28, 1949.

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